

SEQUENCE LISTING

<110> Seibler, Jost
Schwenk, Frieder
Kühn, Ralf
Küter-Luks, Birgit

<120> siRNA mediated gene silencing in transgenic animals

<130> 022698us JH/BM

<140>

<141>

<150> US60/420,476

<151> 2002-10-22

<150> US60/467,814

<151> 2003-05-03

<150> US60/485,969

<151> 2003-07-03

<150> 02023283.1

<151> 2002-10-17

<160> 220

<170> PatentIn Ver. 2.1

<210> 1

<211> 13139

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rosa26 locus
sequence

<400> 1

```

aagcttctca cgtagcaacc agagctccag agccagcagc tgctgccgcc ttgtatactc 60
actcctgtga tccaacacag gagcaacctt ttctttaccc cccccccact tcttaacaca 120
cttttttttg gggggggggg gggaacaagt gtcctatgct ggaaggattg gaactatgct 180
tttagaaagg aacaatccta aggtcacttt taaattgagg tctttgattt gaaaatcaac 240
aaataccaaa ttccaaatat tcgttttaat taaaccagca atgtggatat aagcattaag 300
ttttagtttt aaaaaggcca attttccaaa cattcagcaa tcatatttaa atttacagct 360
aggaacaaga gccttgggtc atgtcctacc aaagaacata actcaatatt ctacacatga 420
caatctgaat aaccttaaa cctctaattc cataacaggc cacaaatttt ggacagagaa 480
ctaattgatc tcctgagaaa actggaagaa atccagggaa aagaaattcc tgtgtcctcc 540
aaactcagaa atctctaatt atgtcagtat tctctgcttt agtcctaggt cagattgcac 600
acatctaaaa taacctctta aagttttcct ctagcgacc taaaccatta ttaatatcaa 660
attaaccatc aaaacacttt cctctcaata tgctgcacac aaacctcctc ctggaacctc 720
ctccatctgg atcctcccca atcaaaaagta taggtattta acatataagc aaggaagtaa 780
tgtaaacatg accttggtca caaatatgtc atctaaaaac aatttagtca aggtatggag 840
gaaattcgag aacctgaatc tttttaagta ttttgagcac aggaacaatt ggcaaaagga 900
atccagggtt agacaaaacc cagagcccag agctctgggc gaaaaatgag ttgctggtga 960
agacgtttaca caagtaacat gagaaagcag aaaatgcagg tcatccacgc acccctgacc 1020
caggccagca gggcgggctg cagcatcagt acacaggaga aagatcctta ttcctaagaa 1080
tgagaaaggc aaaggcgccc gatagaataa attagcatag aaggggcttt cccaggagtt 1140
aaaactttcc ttctgagcga ttacctacta aaaccagggc ttttgcccac taccatttac 1200
ctaggatctt ggcttgacag gattcatagg ggcataatccc tccccctctt ctttagagtc 1260
gttcttaaaa gatcgctctc cacgccctag gcagggaaaa cgacaaaatc tggctcaatt 1320
ccaggctaga accctacaaa ttcaacaggg atatcgcaag gatactgggg catacgccac 1380
agggagtcca agaattgtgag gtggggggtg cgaaggtaat gtctttggtg tgggaaaagc 1440

```

agcagccatc	tgagatagga	actggaaaac	cagaggagag	gcgttcagga	agattatgga	1500
ggggaggact	gggccccac	gagcgaccag	agttgtcaca	aggccgcaag	aacaggggag	1560
gtggggggct	cagggaacaga	aaaaaaagta	tgtgtatttt	gagagcaggg	ttgggaggcc	1620
tctcctgaaa	agggtataaa	cgtggagtag	gcaataccca	ggcaaaaagg	ggagaccaga	1680
gtagggggag	gggaagagtc	ctgacccagg	gaagacatta	aaaaggtagt	ggggtcgact	1740
agatgaagga	gagcctttct	ctctgggcaa	gagcgtgtga	atggtgtgta	aaggtagctg	1800
agaagacgaa	aagggcaagc	atcttccctg	taccaggctg	gggaggccca	ggcccacgac	1860
cccgaggaga	gggaacgcag	ggagactgag	gtgacccttc	tttcccccg	ggcccggtcg	1920
tgtggttcgg	tgtctctttt	ctggttgacc	cttaccttga	cccaggcgct	gccggggcct	1980
gggcccgggc	tgcggcgcac	ggcactccc	ggaggcagcg	agactcgagt	taggcccac	2040
gcggcgccac	ggcgtttct	ggccgggaat	ggcccgtacc	cgtgaggtgg	gggtgggggg	2100
cagaaaaggc	ggagcgagcc	cgagcgggga	gggggagggc	caggggcgga	gggggcccgc	2160
actactgtgt	tggcggactg	gcgggactag	ggctgcgtga	gtctctgagc	gcaggcgggc	2220
ggcgggccgc	cctcccccg	cgggcgacag	ggcggcagcg	gcggcagctc	actcagccc	2280
ctgcccagag	ggaaacgcca	ctgaccgcac	ggggattccc	agtgcggcg	ccaggggcac	2340
gcgggacacg	ccccctccg	ccgcgccatt	ggcctctccg	cccaccgccc	cacacttatt	2400
ggccggtgcg	ccgccaatca	gcggaggctg	ccggggccgc	ctaaagaaga	ggctgtgctt	2460
tggggctccg	gctcctcaga	gagcctcggc	taggtagggg	atcgggactc	tggcggagg	2520
gcggcttggt	gcggttgccg	ggatgggcgg	ccgcggcagg	ccctccgagc	gtggtggagc	2580
cgttctgtga	gacagccggg	tacgagtcgt	gacgctggaa	ggggcaagcg	ggtggtgggc	2640
aggaatgcgg	tccgccctgc	agcaaccgga	gggggagggg	gaaggagcg	gaaaagtctc	2700
caccggacgc	ggccatggct	cggggggggg	ggggcagcgg	aggagcgctt	ccggccgacg	2760
tctcgtcgct	gattggcttc	ttttcctccc	gccgtgtgtg	aaaacacaaa	tggcgtgttt	2820
tgggtggcgt	aaggcgcctg	tcagttaacg	gcagccggag	tgcgcagccg	ccggcagcct	2880
cgctctgccc	actgggtggg	gcgggaggtg	ggtggggtga	ggcgagctgg	acgtgcgggc	2940
gcggtcggcc	tctggcgggg	cgggggaggg	gagggagggt	cagcgaaagt	agctcgcgcg	3000
cgagcggccg	cccaccctcc	ccttcctctg	ggggagtcgt	tttaccgccc	gccggccggg	3060
cctcgtcgct	tgattggctc	tcggggccca	gaaaactggc	ccttgccatt	ggctcgtgtt	3120
cgtgcaagtt	gagtgccatc	gccggccagc	gggggcggcg	aggaggcgct	cccaggttcc	3180
ggccctcccc	tcggccccgc	gccgcagagt	ctggccgcgc	gcccctgcgc	aacgtggcag	3240
gaagcgcgcg	ctgggggagg	ggacgggcag	tagggctgag	cggctgcggg	gcgggtgcaa	3300
gcacgtttcc	gacttgagtt	gcctcaagag	gggcgtgctg	agccagacct	ccatcgcgca	3360
ctccggggag	tggagggaag	gagcgagggc	tcagttgggc	tgttttgag	gcaggaagca	3420
cttgctctcc	caaagtgcgt	ctgagttggt	atcagtaagg	gagctgcagt	ggagtaggag	3480
gggagaaggc	cgcacccttc	tccggagggg	ggaggggagt	gttgcaatac	ctttctggga	3540
gttctctgct	gcctcctggc	ttctgaggac	cgccctgggc	ctgggagaat	cccttcccc	3600
tcttccctcg	tgatctgcaa	ctccagtcct	tctagaagat	gggcgggagt	cttctgggca	3660
ggcttaaagg	ctaacttgtt	gtgtgggcgt	tgctcgcag	gggaattgaa	caggtgtaaa	3720
attggaggga	caagacttcc	cacagatttt	cggttttgtc	gggaagtttt	ttaatagggg	3780
caaataagga	aaatgggagg	ataggtagtc	atctgggggt	ttatgcagca	aaactacagg	3840
ttattattgc	ttgtgatccg	cctcggagta	ttttccatcg	aggtagatta	aagacatgct	3900
cacccgagtt	ttatactctc	ctgcttgaga	tccttactac	agtatgaaat	tacagtgtcg	3960
cgagttagac	tatgtaagca	gaattttaat	catttttaaa	gagcccagta	cttcatatcc	4020
atttctcccc	ctccttctgc	agccttatca	aaaggtattt	tagaacactc	attttagccc	4080
cattttcatt	tattatactg	gcttatccaa	cccctagaca	gagcattggc	attttccctt	4140
tcttgatctt	agaagtctga	tgactcatga	aaccagacag	attagttaca	tacaccacaa	4200
atcgaggctg	tagctggggc	ctcaacactg	cagttctttt	ataactcctt	agtcacattt	4260
ttgttgatcc	tttgccctga	tccttaattt	tcagtgtcta	tcacctctcc	cgtcagtggt	4320
gttccacatt	tgggcctatt	ctcagtcacg	ggagttttac	aacaatagat	gtattgagaa	4380
tccaacctaa	agcttaactt	tccactccca	tgaatgcctc	tctccttttt	ctccatttat	4440
aaactgagct	attaaccatt	aatggttcca	ggtggatgtc	tcttccccat	attacctgat	4500
gtatcttaca	tattgccagg	ctgatatttt	aagacattaa	aaggtatatt	tcattattga	4560
gccacatggg	attgattact	gcttactaaa	attttgtcat	tgtacacatc	tgtaaaagggt	4620
ggttcctttt	ggaatgcaaa	gttcaggtgt	ttgttgtctt	tcctgacctc	aggtcttgtg	4680
agcttgtatt	ttttctattt	aagcagtgct	ttctcttgga	ctggcttgac	tcatggcatt	4740
ctacacgtta	ttgctggtct	aaatgtgatt	ttgccaaagt	tcttcaggac	ctataatttt	4800
gcttgacttg	tagccaaaca	caagtaaaat	gattaagcaa	caaagtattt	tgtgaagcct	4860
ggtttttagg	ttgtgtgtgt	gtgtgtgctt	gtgctctata	ataatactat	ccagggcgctg	4920
gagaggtggc	tcggagttca	agagcacaga	ctgctcttcc	agaagtctcg	agttcaattc	4980
ccagcaacca	catggtggct	cacaaccatc	tgtaatggga	tctgatgccc	tcttctgggtg	5040
tgtctgaaga	ccacaagtgt	attcacatta	aataaataaa	tcttcttctt	tcttcttttt	5100
ttttttttta	aagagaatac	tgtctccagt	agaatttact	gaagtaatga	aatactttgt	5160
gtttgttcca	atatggtagc	caataatcaa	attactcttt	aagcactgga	aatgttacca	5220

aggaactaat	ttttatttga	agtgttaactg	tggacagagg	agccataact	gcagacttgt	5280
gggatacaga	agaccaatgc	agactttaat	gtcttttctc	ttacactaag	caataaagaa	5340
ataaaaaattg	aacttctagt	atcctatttg	tttaaactgc	tagctttact	taacttttgt	5400
gcttcatcta	tacaaagctg	aaagctaagt	ctgcagccat	tactaaacat	gaaagcaagt	5460
aatgataatt	ttggatttca	aaaatgtagg	gccagagttt	agccagccag	tggtggtgct	5520
tgcctttatg	cctttaatcc	cagcactctg	gaggcagaga	caggcagatc	tctgagtttg	5580
agcccagcct	ggtctacaca	tcaagttcta	tctaggatag	ccaggaatac	acacagaaac	5640
cctgttgggg	aggggggctc	tgagatttca	taaaattata	attgaagcat	tccctaataga	5700
gccactatgg	atgtggctaa	atccgtctac	ctttctgatg	agatttgggt	attatttttt	5760
ctgtctctgc	tggtggttgg	gtcttttgac	actgtgggct	ttctttaaag	cctccttctc	5820
gccatgtggt	ctcttgtttg	ctactaactt	cccatggctt	aaatggcatg	gctttttgcc	5880
ttctaagggc	agctgctgag	atttgcagcc	tgatttccag	ggtggggttg	ggaaatcttt	5940
caaacactaa	aattgtcctt	taattttttt	tttaaaaaat	gggttatata	ataaacctca	6000
taaaatagtt	atgaggagtg	aggtggacta	atattaaatg	agtccctccc	ctataaaaaga	6060
gctattaagg	ctttttgtct	tatacttaac	ttttttttta	aatgtggtat	ctttagaacc	6120
aaggggtctta	gagtttttagt	atacagaaac	tgttgcatcg	cttaatcaga	ttttctagtt	6180
tcaaatccag	agaatccaaa	ttcttcacag	ccaaagtcaa	attaagaatt	tctgactttt	6240
aatgttaatt	tgcttactgt	gaatataaaa	atgatagctt	ttcctgaggc	agggctctcac	6300
tatgtatctc	tgccctgatct	gcaacaagat	atgtagacta	aagttctgcc	tgcttttgtc	6360
tactgaatac	taaggttaaa	atgtagtaat	acttttggaa	cttgccaggtc	agattctttt	6420
atagggggaca	cactaaggga	gcttgggtga	tagttggtaa	aatgtgtttc	aagtgatgaa	6480
aacttgaatt	attatcaccg	caacctactt	tttaaaaaaa	aaagccaggc	ctgttagagc	6540
atgcttaagg	gatccctagg	acttgctgag	cacacaagag	tagttacttg	gcaggctcct	6600
ggtgagagca	tatttcaaaa	aacaaggcag	acaaccaaga	aactacagtt	aaggttacct	6660
gtcttttaaac	catctgcata	tacacagggg	tattaaaata	ttccaaataa	tatttcattc	6720
aagttttccc	ccatcaaaat	gggacatgga	tttctccggt	gaataggcag	agttggaaac	6780
taaacaaatg	ttggttttgt	gatttgtgaa	attgttttca	agtgatagtt	aaagcccatg	6840
agatacagaa	caaagctgct	atttcgaggt	ctcttggttt	atactcagaa	gcacttcttt	6900
gggtttccct	gcactatcct	gatcatgtgc	taggcctacc	ttaggctgat	tggtgttcaa	6960
ataaacttaa	gtttcctgtc	aggtgatgtc	atatgatttc	atatatcaag	gcaaaacatg	7020
ttatatatgt	taaacatttg	tacttaatgt	gaaagttagg	tctttgtggg	tttgattttt	7080
aattttcaaa	acctgagcta	aataagtcac	ttttacatgt	cttacatttg	gtggaattgt	7140
ataattgtgg	tttgcaggca	agactctctg	acctagtaac	cctacctata	gagcactttg	7200
ctgggtcaca	agtctaggag	tcaagcattt	caccttgaag	ttgagacggt	ttgttagtgt	7260
atactagttt	atatgttgga	ggacatgttt	atccagaaga	tattcaggac	tatttttgac	7320
tgggctaagg	aattgattct	gattagcact	gttagtgagc	attgagtggc	ctttaggctt	7380
gaattggagt	cacttgtata	tctcaaataa	tgctggcctt	ttttaaaaag	cccttgctct	7440
ttatcaccct	gttttctaca	taatttttgt	tcaaagaaat	acttgttttg	atctcctttt	7500
gacaacaata	gcatgttttc	aagccatatt	ttttttcctt	tttttttttt	tttttggttt	7560
ttcgagacag	ggtttctctg	tatagccctg	gctgtcctgg	aactcacttt	gtagaccagg	7620
ctggcctcga	actcagaaat	ccgcctgcct	ctgcctcctg	agtgccggga	ttaaaggcgt	7680
gcaccaccac	gcctggctaa	gttgatattt	ttgttatata	actataacca	atactaactc	7740
cactgggttg	atttttaatt	cagtcagtag	tcttaagtgg	tctttatttg	cccttcatta	7800
aaatctactg	ttcactctaa	cagaggctgt	tggtactagt	ggcacttaag	caacttccta	7860
cggatatact	agcagattaa	gggtcaggga	tagaaaactag	tctagcggtt	tgtataccta	7920
ccagctttat	actaccttgt	tctgatagaa	atatttcagg	acatctagag	tgtactataa	7980
ggttgatggt	aagcttataa	ggaacttgaa	agtgagtaga	ctactccatt	tctctgaggg	8040
gagaattaaa	atttttgacc	aagtgttgtt	gagccactga	gaatgggtctc	agaacataac	8100
ttcttaagga	accttcccag	attgcctcca	acactgcacc	acatttggtc	ctgcttgaac	8160
attgccatgg	ctcttaaagt	cttaattaa	aatattaatt	gtgtaattat	tgtttttctc	8220
ccttttagatc	attccttgag	gacaggacag	tgcttggtta	aggctatatt	tctgctgtct	8280
gagcagcaac	aggtcttcga	gatcaacatg	atgttcataa	tcccaagatg	ttgccattta	8340
tgttctcaga	agcaagcaga	ggcatgatgg	tcagtgcacg	taatgtcact	gtgttaaattg	8400
ttgctatgca	gtttggattt	ttctaattga	gtgtaggtag	aacatatgtg	ttctgtatga	8460
attaaactct	taagttacac	cttgtataat	ccatgcaatg	tgttatgcaa	ttaccatttt	8520
aagtattgta	gctttctttg	tatgtgagga	taaaggtgtt	tgtcataaaa	tgttttgaac	8580
atttccccaa	agttccaaat	tataaaaacca	caacggttaga	acttatttat	gaacaatggt	8640
tgtagtttca	tgctttttaa	atgcttaatt	attcaattaa	caccgtttgt	gttataatat	8700
atataaaact	gacatgtaga	agtgtttgtc	cagaacattt	cttaaatgta	tactgtcttt	8760
agagagttta	atatagcatg	tcttttgcaa	catactaact	tttgtgttgg	tgcgagcaat	8820
attgtgtagt	cattttgaaa	ggagtcattt	caatgagtg	cagattgttt	tgaatgttat	8880
tgaacatttt	aaatgcagac	ttgttcgtgt	tttagaaagc	aaaactgtca	gaagctttga	8940
actagaaatt	aaaaagctga	agtatttcag	aagggaataa	agctacttgc	tgtatttagtt	9000

```

gaaggaaagt gtaatagctt agaaaattta aaaccatata gttgtcattg ctgaatatct 9060
ggcagatgaa aagaaatact cagtgggttct tttgagcaat ataacagctt gttatatata 9120
aaatcccc cagagatata aactcctaact tataactcat aaatgttaca aatggatgaa 9180
gcttacaaat gtggccttgac ttgtcactgt gcttgtttta gttatgtgaa agtttggcaa 9240
taaacctatg tcctaaatatg tcaaactgtg gaatgacttt ttaatctatt ggtttgtcta 9300
gaacagttat gttgccattt gccctaattg tgaaaagaaa agtggggagt gccttggcac 9360
tggtcatttg tgggtggaac caaagagggg ggcatgcact tacacttcaa acatcctttt 9420
gaaagactga caagtttggg tcttcacagt tgggaattggg catccctttt gtcagggagg 9480
gagggaggga gggaggctgg cttgttatgc tgacaagtgt gattaaattc aaactttgag 9540
gtaagttgga ggaacttgta cattgttagg agtgtgacaa tttggactct taatgatttg 9600
gtcatacaaa atgaacctag accaacttct ggaagatgta tataataact ccatgttaca 9660
ttgatttcac ctgactaata cttatccctt atcaattaaa tacagaagat gccagccatc 9720
tgggcctttt aaccagaaa tttagtttca aactcctagg ttagtgttct cactgagcta 9780
catcctgatc tagtcctgaa aataggacca ccataccccc caaaaaaatc tcaaataaga 9840
tttatgctag tgtttcaaaa ttttaggaat aggttaagatt agaaagtttt aaattttgag 9900
aaatggcttc tctagaaaga tgtacatagt gaacactgaa tggctcctaa agagcctaga 9960
aaactggtac tgagcacaca ggactgagag gtctttcttg aaaagcatgt attgctttac 10020
gtgggtcaca gaaggcaggc aggaagaact tgggtgaaa ctggtgtctt aagtggctaa 10080
catcttcaca actgatgagc aagaacttta tcctgatgca aaaaccatcc aaacaaacta 10140
agtgaaggt ggcaatggat cccaggctgc tctagaggag gacttgactt ctcaccccat 10200
caccacacc agatagctca tagactgcca attaacacca gcttctagcc tccacaggca 10260
cctgcactgg tacacataat ttcacacaaa cacagtaaga agccttccac ctggcatggt 10320
attgcttate tttagttccc aacacttggg aggcagaggc cagccagggg tatgtgacaa 10380
aaaccttgct tagaggagaa acttcatagc ttatttccca ttcacgtaac caggtagca 10440
aaatttacca gccagagatg aagctaacag tgtccactat atttgtagtg ttttaagtca 10500
atTTTTTaaa tatacttaat agaattaaag ctatggtgaa ccaagtacaa acctggtgta 10560
ttaacttgag aacttagcat aaaaagtagt tcatgtgttc agtaaatatt aaatgcttac 10620
tggaagat tatgtcagga acttggtaaa tgggtagtaa acaatcatag ttgtacatct 10680
tggttctgtg atcaccttg tttgaggtaa aagtggttcc tttgatcaag gatggaattt 10740
taagtttata ttcaatcaat aatgtattat tttgtgattg caaaattgcc tatctagggt 10800
ataaaacctt taaaaatttc ataataccag ttcattctcc agttactaat tccaaaaagc 10860
cactgactat ggtgccaatg tggattctgt tctcaaagga aggattgtct gtgcccttta 10920
ttctaataga aacatcacac tgaaaatcta agctgaaaga agccagactt tcctaaataa 10980
ataactttcc ataaagctca aacaaggatt acttttagga ggcactgtta aggaactgat 11040
aagtaatgag gttacttata taatgatagt cccacaagac tatctgagga aaaatcagta 11100
caactcgaaa acagaacaac cagctaggca ggaataacag ggctcccaag tcaggagggtc 11160
tatccaacac ccttttctgt tgagggtccc agacctacat attgtatata aacagggagg 11220
tggtgattt taactctcct gaggtacctt ggtaaatctt tgtcctgagt aagcagtaca 11280
gtgtacagtt tacattttca tttaaagata cattagctcc ctctaccccc taagactgac 11340
aggcactttg ggggtgggga gggctttgga aaataacgct tccatacact aaaagagaaa 11400
tttctttaat taggcttggt ggttccatac atctactggt gtttctacta cttagtaata 11460
ttataatagt cacacaagca tctttgctct gtttaggttg tatatttatt ttaaggcaga 11520
tgataaaact gtagatctta agggatgctt ctgcttctga gatgatacaa agaatttaga 11580
ccataaaaca gtaggttgca caagcaatag aatatggcct aaagtgttct gacacttaga 11640
agccaagcag ttagagcttc ttaagaaata ccattacaat caccttgcta gaaatcaagc 11700
attctggagt ggtcaagcag tgtaacctgt actgtaagtt acttttctgc tatttttctc 11760
ccaaagcaag ttctttatgc tgatatttcc agtgttagga actacaaata ttaataagtt 11820
gtcttcactc ttttctttac caaggagggt ctcttccttc atcttgatct gaaggatgaa 11880
caaaggcttg agcagtgcgc tttagaagat aaactgcagc atgaaggccc ccgatgttca 11940
cccagactac atggaccttt cgccacacat gtcccattcc agataaggcc tggcacacac 12000
aaaaaacata agtcattagg ctaccagtct gattctaaaa caacctaaaa tcttcccact 12060
taaagtctat ggggtggggg ttggaaagtt gactcagaaa atcacttgct gtttttagag 12120
aggatctggg ttcagtttct gatacattgt ggcttacaac tataactcca gttctagggg 12180
gtccatccaa catcctcttc tgttgagggc accaaataaa tgtatttgtt acaaacaggg 12240
aggtagagtga tttactctc gtgtatagta ccttggtaaa acatttcttg tctgagtaa 12300
gcagtacagc tctgcctgtc cctggtctac agacacggct catttcccga aggcaagctg 12360
gatagagatt ccaatttctc ttcttggtac ccatcctata aaagaaggtc aagtttaatc 12420
tattgcaaaa ggtaaatagg tagtttctta ctatgacaa gaacaaatct taggtgtgaa 12480
gcagtcatct tttacaggcc agagcctcta ttctatgcca atgaaggaaa ctgttagtcc 12540
agtgttatag agttagtcca gtgtatagtt ttctatcaga acactttttt tttaaacaac 12600
tgcaacttag cttattgaag acaaaccacg agtagaaatc tgtccaagaa gcaagtgtct 12660
ctcagcctac aatgtggaat aggaccatgt aatggtacag tgagtgaat gaattatggc 12720
atgtttttct gactgagaag acagtacaat aaaaggtaaa ctcattggtat ttatttataa 12780

```

```

agaatccaat ttctaccttt ttccaaatgg catatctgtt acaataatat ccacagaagc 12840
agttctcagt gggagggttg agatatccca ctgaacagca tcaatgggca aaccccaggt 12900
tgtttttctg tggagacaaa ggtaagatat ttcaatatat tttcccaagc taatgagatg 12960
gctcagcaaa taatggtact ggccattaag tctcatgacc tgagcttgat cctcagggac 13020
catgtggtac aaggagagac ctaaatacctt cagttggact tcaatcttct accctcatgt 13080
ccacacacaa ataaatacaa taaaaaacat tctgcagtcg aatttctaaa agggcgaat 13139

```

<210> 2

<211> 5409

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: sequence of
homology region

<400> 2

```

caggeccctcc gagcgtgggtg gagccgtttct gtgagacagc cgggtacgag tcgtgacgct 60
ggaaggggca agcgggtggt gggcaggaat gcggtccgcc ctgcagcaac cggaggggga 120
gggagaaggg agcggaaaag tctccaccgg acgcggccat ggctcggggg ggggggggca 180
gcggaggagc gcttccggcc gacgtctcgt cgctgattgg cttcttttcc tcccgcctgt 240
tgtgaaaaca caaatggcgt gttttggttg gcgtaaggcg cctgtcagtt aacggcagcc 300
ggagtgcgca gccgcgggca gcctcgtctt gccactggg tggggcgggg ggtaggtggg 360
gtgaggcgag ctggacgtgc gggcgcggtc ggctctggc ggggcggggg aggggagggg 420
gggtcagcga aagtagctcg cgcgcgagcg gccgccacc ctccccttcc tctgggggag 480
tcgtttttacc cgcgcgggc cgggcctcgt cgtctgattg gctctcgggg ccagaaaac 540
tggecccttgc cattggctcg tgttcgtgca agttgagtc atccgcggc cagcgggggc 600
ggcgaggagg cgctcccagg ttccggccct cccctcggcc ccgcgcgca gagtctggcc 660
gcgcgcccct gcgcaacgtg gcaggaagcg cgcgtgggg gcggggacgg gcagtagggc 720
tgagcggctg cggggcgggg gcaagcacgt ttccgacttg agttgcctca agaggggctg 780
gctgagccag acctccatcg cgcactccgg ggagtggagg gaaggagcga gggctcagtt 840
gggctgtttt ggaggcagga agcacttgct ctcccaaagt cgctctgagt tgttatcagt 900
aaggagctg cagtggagta ggcggggaga aggcgcgacc cttctcggga ggggggaggg 960
gagtgttgca atacctttct gggagttctc tgctgcctcc tggcttctga ggaccgcct 1020
gggcctggga gaatcccttc cccctcttcc ctgctgatct gcaactccag tctttctaga 1080
agatgggcgg gagtcttctg ggcaggctta aaggctaacc tgggtgtgtg gcgttgtcct 1140
gcaggggaat tgaacagggtg taaaatttga gggacaagac ttcccacaga ttttcggttt 1200
tgtcgggaag ttttttaata ggggcaaata aggaaaatgg gaggataggt agtcatctgg 1260
ggttttatgc agcaaaacta caggttatta ttgcttgtga tccgcctcgg agtattttcc 1320
atcgaggtag attaaagaca tgctcaccgg agttttatac tctcctgctt gagatcctta 1380
ctacagtatg aaattacagt gtgcgcgagt agactatgta agcagaattt taatcatttt 1440
taaagagccc agtacttcat atccatttct cccgctcctt ctgcagcctt atcaaaaggt 1500
attttagaac actcatttta gccccatttt catttattat actggcttat ccaaccctta 1560
gacagagcat tggcattttc cctttcctga tcttagaagt ctgatgactc atgaaaccag 1620
acagattagt tacatacacc acaaactcag gctgtagctg gggcctcaac actgcagttc 1680
ttttataact ccttagtaca ctttttgttg atcctttgcc ttgatcctta attttcagtg 1740
tctatcacct ctcccgtcag tgggtgttcca catttgggcc tattctcagt ccagggagtt 1800
ttacaacaat agatgtattg agaatccaac ctaaagctta actttccact cccatgaatg 1860
cctctctcct ttttctccat ttataaactg agctattaac cattaatggg tccaggtgga 1920
tgtctcctcc ccatattacc tgatgtatct tacatattgc caggctgata ttttaagaca 1980
ttaaaaggta tatttcatta ttgagccaca tggatttgat tactgcttac taaaattttg 2040
tcattgtaca catctgtaaa aggtggttcc ttttggaatg caaagttcag gtgtttgttg 2100
tctttcctga cctaaggctt tgtgagcttg tattttttct atttaagcag tgctttctct 2160
tggaactggc tgactcatgg cattctacac gttattgctg gtctaaatgt gattttgcca 2220
agcttcttca ggacctataa ttttgcttga ctgttagcca aacacaagta aaatgattaa 2280
gcaacaaatg tatttgtgaa gcttggtttt taggtgtgtg tgttgtgtgt gcttgtgtct 2340
tataataata ctatccagg gctggagagg tggctcggag ttcaagagca cagactgctc 2400
ttccagaagt cctgagttca attcccagca accacatggg ggctcacaac catctgtaat 2460
gggatctgat gccctcttct ggtgtgtctg aagaccacaa gtgtattcac attaaataaa 2520
taaactctcc ttcttcttct tttttttttt tttaaagaga atactgtctc cagtagaatt 2580
tactgaagta atgaaatact ttgtgtttgt tccaatatgg tagccaataa tcaaatfact 2640
ctttaagcac tggaaatggt accaaggaac taatttttat ttgaagtgt actgtggaca 2700

```

```

gaggagccat aactgcagac ttgtgggata cagaagacca atgcagactt taatgtcttt 2760
tctcttacac taagcaataa agaaataaaa attgaacttc tagtataccta tttgtttaaa 2820
ctgctagctt tacttaactt ttgtgcttca tctatacaaaa gctgaaagct aagtcctgcag 2880
ccattactaa acatgaaagc aagtaatgat aattttggat ttcaaaaatg tagggccaga 2940
gttttagccag ccagtgggtg tgcttgccct tatgccttta atcccagcac tctggaggca 3000
gagacaggca gatctctgag tttgagccca gcctggctta cacatcaagt tctatctagg 3060
atagccagga atacacacag aaaccctgtt ggggaggggg gctctgagat ttcataaaaat 3120
tataattgaa gcattcccta atgagccact atggatgtgg ctaaataccgt ctacctttct 3180
gatgagattt ggggtattatt ttttctgtct ctgctgttgg ttgggtcttt tgacactgtg 3240
ggctttcttt aaagcctcct tcctgccatg tggctctctg tttgctacta acttcccatg 3300
gcttaaatgg catggctttt tgcccttctaa gggcagctgc tgagatttgc agcctgattt 3360
ccagggtggg gttgggaaat ctttcaaaca ctaaaattgt cctttaattt tttttttaaa 3420
aaatgggtta tataataaac ctcataaaaat agttatgagg agtgagggtg actaatatta 3480
aatgagctcc tcccctataa aagagctatt aaggcttttt gtcttatact taactttttt 3540
tttaaatgtg gtatctttag aaccaagggt cttagagttt tagtatacag aaacttttgc 3600
atcgcttaat cagattttct agtttcaaat ccagagaatc caaattcttc acagccaaag 3660
tcaaattaag aatttctgac ttttaatggt aatttgctta ctgtgaatat aaaaatgata 3720
gcttttctg aggcagggtc tcactatgta tctctgcctg atctgcaaca agatatgtag 3780
actaaagttc tgcctgcttt tgtctcctga atactaagg taaaatgtag taatactttt 3840
ggaacttgca ggtcagattc ttttataggg gacacactaa gggagcttgg gtgatagtgt 3900
gtaaaatgtg tttcaagtga tgaaaacttg aattattatc accgcaacct actttttaaa 3960
aaaaaaagcc aggcctgtta gagcatgctt aagggatccc taggacttgc tgagcacaca 4020
agagtagtta cttggcaggc tcctgggtgag agcatatttc aaaaaacaag gcagacaacc 4080
aagaaactac agttaagggt acctgtcttt aaaccatctg catatacaca gggatattaa 4140
aatattccaa ataataattt attcaagttt tcccccatca aattgggaca tggatttctc 4200
cgggtgaatag gcagagttgg aaactaaaca aatgttgggt ttgtgatttg tgaaattgtt 4260
ttcaagtgat agttaaaagc catgagatac agaacaagc tgctatttgc aggtctcttg 4320
gtttatactc agaagcactt ctttgggttt ccctgcacta tcctgatcat gtgctaggcc 4380
taccttaggc tgattgttg tcaaataaac ttaagtttcc tgtcaggtga tgtcatatga 4440
tttcatatat caaggcaaaa catgttatat atgttaaaca tttgtactta atgtgaaagt 4500
taggtctttg tgggtttgat ttttaatttt caaaacctga gctaaataag tcattttttac 4560
atgtcttaca tttggtggaa ttgtataatt gtggtttgca ggcaagactc tctgacctag 4620
taaccctacc tatagagcac tttgctgggt cacaagctca ggagtcaagc atttcacctt 4680
gaagttgaga cgttttggtt gtgtatacta gtttatatgt tggaggacat gtttatccag 4740
aagatattca ggactatttt tgactgggct aaggaattga ttctgattag cactgttagt 4800
gagcattgag tggccttttag gcttgaattg gactcacttg tatatctcaa ataatgctgg 4860
ccttttttaa aaagcccttg ttctttatca ccctgttttc tacataattt ttgttcaaag 4920
aaatacttgt ttggtctctc ttttgacaac aatagcatgt tttcaagcca tttttttttt 4980
cctttttttt tttttttttg gtttttctgag acagggtttc tctgtatagc cctggctgtc 5040
ctggaactca ctttgtagac caggctggcc tcgaactcag aaatccgcct gcctctgcct 5100
cctgagtgcc gggattaaag gcgtgcacca ccacgcctgg ctaagttgga tttttgtta 5160
tataactata accaatacta actccaactg gtggattttt aattcagtca gtagtcttaa 5220
gtggtcttta ttggcccttc attaaaatct actgttcact ctaacagagg ctggttggtac 5280
tagtggcact taagcaactt cctacggata tactagcaga ttaagggtca gggatagaaa 5340
ctagtctagc gttttgtata cctaccagct ttatactacc ttgttctgat agaaatattt 5400
caggacatc

```

<210> 3

<211> 4413

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Sequence of
Fluc-hygro insert

<400> 3

```

tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgag tagtccagg 60
tttccttgat gatgtcatac ttatcctgtc cttttttttt ccacagctcg cggttgagga 120
caaactcttc gcggtctttc cagtactcct gcagggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtagctgt ggtaaagcca ccatggaaga cgccaaaaaac 240
ataaagaaaag gcccggcgcc attctatccg ctggaagatg gaaccgctgg agagcaactg 300

```

cataaggcta	tgaagagata	cgccctgggt	cctggaacaa	ttgctttttac	agatgcacat	360
atcgagggtg	acatcactta	cgctgagtag	ttcgaaatgt	ccgttcgggt	ggcagaagct	420
atgaaacgat	atgggctgaa	tacaaatcac	agaatcgtcg	tatgcagtga	aaactctctt	480
caattcttta	tgccggtggt	gggcgcgtta	tttatcggag	ttgcagttgc	gccccggaac	540
gacattttata	atgaacgtga	attgctcaac	agtatgggca	tttcgcagcc	taccgtgggtg	600
ttcgttttcca	aaaagggggt	gcaaaaaaatt	ttgaacgtgc	aaaaaaaagct	cccaatcatc	660
caaaaaatta	ttatcatgga	ttctaaaacg	gattaccagg	gatttcagtc	gatgtacacg	720
ttcgctcacat	ctcatctacc	tcccggtttt	aatgaatacg	attttgtgcc	agagtccttc	780
gatagggaca	agacaattgc	actgatcatg	aactcctctg	gatctactgg	tctgcctaaa	840
ggtgtcgctc	tgccctcatag	aactgcctgc	gtgagattct	cgcatgccag	agatcctatt	900
tttggcaatc	aaatcattcc	ggatactgcg	atttttaagt	ttgttccatt	ccatcacggt	960
tttggaaatgt	ttactacact	cggataatttg	atatgtggat	ttcgagtcgt	cttaatgtat	1020
agatttgaag	aagagctggt	tctgaggagc	cttcaggatt	acaagattca	aagtgcgctg	1080
ctggtgcca	ccctattctc	cttcttcgcc	aaaagcactc	tgattgacaa	atacgattta	1140
tctaattttac	acgaaattgc	ttctgggtggc	gctccccctc	ctaagggaagt	cggggaagcg	1200
gttgccaaga	ggttccattc	gccagggtat	aggcaaggat	atgggctcac	tgagactaca	1260
tcagctattc	tgattacacc	cgagggggat	gataaaccgg	gcgcggtcgg	taaagttggt	1320
ccattttttg	aagcgaaggt	tgtggatctg	gataccggga	aaacgctggg	cgtaaatcaa	1380
agaggcgaac	tgtgtgtgag	aggtcctatg	attatgtccg	gttatgtaaa	caatccggaa	1440
gcgaccaacg	ccttgattga	caaggatgga	tggctacatt	ctggagacat	agcttactgg	1500
gacgaagacg	aacacttctt	catcgttgac	cgctgaagt	ctctgattaa	gtacaaaggc	1560
tatcaggtgg	ctcccgctga	attggaatcc	atcttgctcc	aacaccccaa	catcttcgac	1620
gcaggtgtcg	caggtcttcc	cgacgatgac	gccggtgaac	ttcccgcgcg	cgttgttggt	1680
ttggagcacg	gaaagacgat	gacggaaaaa	gagatcgtgg	attacgtcgc	cagtcaagta	1740
acaaccgcga	aaaagttgcg	cggaggaggt	gtgttgtgg	acgaagtacc	gaaaggtctt	1800
accggaaaac	tcgacgcaag	aaaaatcaga	gagatcctca	taaaggccaa	gaagggcgga	1860
aagatcgccg	tgtaatctta	gaccggttcg	agatccaggc	gcggatcaat	aaaagtcatt	1920
tattttcaat	agatctgtgt	gttggttttt	tgtgtgcctt	gggggagggg	gaggccagaa	1980
tgaggcgcg	ccaaggggga	gggggaggcc	agaatgacct	tgggggaggg	ggaggccaga	2040
atgaccttgg	gggaggggga	ggccagaatg	aggcgcgccc	ccgatccgtc	gacgccctaa	2100
ggccatagcg	gccgccctga	ggccgcgggc	gatcgcctag	gggtaaccga	agttcctata	2160
ctttctagag	aataggaact	tcggaatagg	aacttcttat	aatctagaag	atctggatcc	2220
acgattcgag	ggcccttgca	ggtcaattct	accgggtagg	ggaggcgctt	ttcccaaggc	2280
agtctggagc	atgcgcttta	gcagccccgc	tggcacttgg	cgctacacaa	gtggcctctg	2340
gcctcgcaca	cattccacat	ccaccggtag	cgccaaccgg	ctccgttctt	tggtggcccc	2400
ttcgcgccac	cttctactcc	tcccctagtc	aggaagttcc	ccccgcgcc	gcagctcgcg	2460
tcgtgcagga	cgtgacaaat	ggaagtagca	cgctctacta	gtctcgtgca	gatggacagc	2520
accgctgagc	aatggaagcg	ggtaggcctt	tggggcagcg	gccaatagca	gctttgctcc	2580
ttcgctttct	gggctcagag	gctgggaagg	ggtgggtccg	ggggcgggct	caggggcggg	2640
ctcaggggcg	gggcgggcgc	gaaggctctc	ccgaggcccc	gcattctcgc	acgcttcaaa	2700
agcgcacgtc	tgccgcgctg	ttctcctctt	cctcatctcc	gggcctttcg	acgatccagc	2760
cgccaccatg	aaaaagcctg	aactcaccgc	gacgtctgtc	gagaagtttc	tgatcgaaaa	2820
gttcgacagc	gtctccgacc	tgatgcagct	ctcggagggc	gaagaatctc	gtgctttcag	2880
cttcgatgta	ggagggcgtg	gatatgtcct	gcgggtaaat	agctgcgcgc	atggtttcta	2940
caaagatcgt	tatgtttatc	ggcactttgc	atcggccgcg	ctcccgattc	cgaagtgct	3000
tgacattggg	gaattcagcg	agagcctgac	ctattgcate	tcccgcctg	cacagggtgt	3060
cacgttgcaa	gacctgcctg	aaaccgaact	gcccgctgtt	ctgcagccgg	tcgcggaggc	3120
catggatgcc	atcgctgcgg	ccgatcttag	ccagacgagc	gggttcggcc	cattcggaac	3180
gcaagggaatc	ggtcaataca	ctacatggcg	tgatttcata	tgccgcgattg	ctgatcccca	3240
tgtgtatcac	tggcaaaactg	tgatggacga	caccgtcagt	gcgtccgtcg	cgcaggctct	3300
cgatgagctg	atgctttggg	ccgaggactg	ccccgaagtc	cggcacctcg	tgcacgcgga	3360
tttcggctcc	aacaatgtcc	tgacggacaa	tggccgcata	acagcgggtca	ttgactggag	3420
cgaggcgatg	ttcgggggatt	cccaatacga	ggtcgccaac	atcttcttct	ggaggccggtg	3480
gttggcttgt	atggagcagc	agacgcgcta	cttcgagcgg	aggcatccgg	agcttgacgg	3540
atcgccgcgg	ctccgggcgt	atatgctccg	cattggtctt	gaccaactct	atcagagctt	3600
ggttgacggc	aatttcgatg	atgcagcttg	ggcgagggtg	cgatgcgacg	caatcgctcg	3660
atccggagcc	gggactgtcg	ggcgtagaca	aatcgccgcg	agaagcgcg	ccgtctggac	3720
cgatggctgt	gtagaagtac	tcgccgatag	tggaaaccga	cgccccagca	ctcgtccgag	3780
ggcaaaggaa	tagtcgatgc	agaaaattgat	gatctattaa	acaataaaga	tgtccactaa	3840
aatggaagtt	tttctgttca	tactttgtta	agaagggtga	gaacagagta	cctacatttt	3900
gaatggaagg	attggagcta	cgggggtggg	ggtgggggtg	gattagataa	atgcctgctc	3960
tttactgaag	gctctttact	attgctttat	gataatgttt	catagttgga	tatcataatt	4020
taaacaagca	aaaccaaatt	aagggccagc	tcattcctcc	cactcatgat	ctatagatct	4080

```

atagatctct cgtgggatca ttgtttttct cttgattccc actttgtggt tctaagtact 4140
gtggtttcca aatgtgtcag ttcatagcc tgaagaacga gatcagcagc ctctgttcca 4200
catacacttc attctcagta ttgttttgcc aagttctaata tccatcagaa gctgactcta 4260
gatcctgcag gaattcatat gaagttccta tactttctag agaataaggaa cttcgggaata 4320
ggaacttcaa aatgtcgcgg cgcgcgggta accgaagttc ctatactttc tagagaatag 4380
gaacttcgga ataggaactt caagcttaag cgc 4413

```

<210> 4

<211> 14947

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Targeting
vector for Rosa26 locus with a Fluc-hygro insert

<400> 4

```

ctagggataa cagggttaata tagccgcggc aggccctccg agcgtggtgg agccgttctg 60
tgagacagcc ggggtacgagt cgtgacgctg gaaggggcaa gcgggtggtg ggcaggaatg 120
cggctccgcc tgcagcaacc ggagggggag ggagaaggga gcggaaaagt ctccaccgga 180
cgcggccatg gctcgggggg gggggggcag cggaggagcg cttccggccg aegtctcgtc 240
gctgattggc ttcttttccct cccgcctgtg gtgaaaacac aaatggcgtg ttttggttgg 300
cgtaaggcgc ctgtcagtta acggcagccg gagtgcgcag ccgccggcag cctcgctctg 360
cccactgggt ggggcgggag gtaggtgggg tgaggcgagc tggacgtgcg ggcgcggtcg 420
gcctctggcg gggcggggga ggggagggag ggtcagcgaa agtagctcgc gcgcgagcgg 480
ccgccacccc tccccttccct ctgggggagt cgttttaccg gccgcgggcc gggcctcgtc 540
gtctgattgg ctctcggggc ccagaaaact ggcccttgcc attggctcgt gttcgtgcaa 600
gttgagtcca tccgcgggcc agcggggcg gcgaggaggc gctcccaggt tccggccctc 660
ccctcggccc cgcgcgcgag agtctggccg cgcgccctg cgcaacgtgg caggaagcgc 720
gcgctggggg cggggacggg cagtagggct gagcggctgc ggggcgggtg caagcacgtt 780
tccgacttga gttgcctcaa gaggggcgtg ctgagccaga cctccatcgc gcactccggg 840
gagtggaggg aaggagcgag ggctcagttg ggctgtttt gaggcaggaa gcacttgctc 900
tcccaaagtc gctctgagtt gttatcagta agggagctgc agtgagtag gcggggagaa 960
ggccgcaccc ttctccggag gggggagggg agtgttgcaa tacctttctg ggagttctct 1020
gctgcctcct ggcttctgag gaccgccctg ggctgggag aatcccttcc cctcttccc 1080
tcgtgatctg caactccagt ctttctaggt aaccgatc cctgcagggg tgacctgcac 1140
gtctagggag cagtagtcca gggtttccct gatgatgtca tacttatect gtcccttttt 1200
tttccacagc tcgcggttga ggacaaaact ttccggtct ttccagttact cctgcagggtg 1260
actgactgag tcgagatctg cgatctaagt aagcttgga ttccggtact gttggtaaag 1320
ccaccatgga agacgcaaaa aacataaaga aaggcccggc gccattctat ccgctggaag 1380
atggaaccgc tggagagcaa ctgcataagg ctatgaagag atacgccctg gttcctggaa 1440
caattgcttt tacagatgca catatcgagg tggacatcac ttacgtgag tacttcgaaa 1500
tgtccgttcc gttggcagaa gctatgaaac gatatgggt gaatacaaat cacagaatcg 1560
tcgtatgcag tgaaaactct cttcaattct ttagccggt gttgggcgcg ttatttatcg 1620
gagttgcagt tgcgcccgcg aacgcacatt ataattgaac tgaattgctc aacagtatgg 1680
tgacttcgca gctaccgtg gtgttcgttt ccaaaaagg gttgcaaaaa attttgaacg 1740
tgcaaaaaaa gctcccaatc atccaaaaaa ttattatcat ggattctaaa acggattacc 1800
agggatttca gtcgatgtac acgttcgtca catctcatct acctcccggt tttaataaat 1860
acgattttgt gccagagtcc ttcgatagg acaagacaat tgcactgatc atgaactcct 1920
ctggatctac tggctgcct aaaggtgtcg ctctgcctca tagaactgcc tgcgtgagat 1980
tctcgcatgc cagagatcct atttttggca atcaaatcat tccggatact gcgattttta 2040
gtgttggtcc attccatcac ggttttgga tgtttactac actcgatat ttgatattgt 2100
gatttcgagt cgtcttaaatg tatagatttg aagaagagct gtttctgagg agccttcagg 2160
attacaagat tcaaagtgcg ctgctggtgc caaccctatt ctcttctctt gccaaaagca 2220
ctctgattga caaatacgat ttatctaatt tacacgaaat tgcttctggt ggcgtccccc 2280
tctctaagga agtcggggaa gcggttgcca agaggttcca tctgccagg atcaggcaag 2340
gatattgggt cactgagact acatcagcta ttctgattac acccgagggg gatgataaac 2400
cgggcgcggg cggtaaagtt gttccatttt ttgaagcgaa ggttggtgat ctggataaccg 2460
ggaaaacgct gggcggttaat caaagaggcg aactgtgtgt gagaggtcct atgattatgt 2520
ccggttatgt aaacaatccg gaagcgacca acgccttgat tgacaaggat ggatggctac 2580
attctggaga catagcttac tgggacgaag acgaacactt cttcatcggt gaccgcctga 2640
agtctctgat taagtacaaa ggctatcagg tggctcccgc tgaattggaa tccatcttgc 2700

```


tccaacaccc	caacatcttc	gacgcaggtg	tcgcaggtct	tcccgcacgat	gacgccggtg	2760
aacttccccg	cgccgttggt	gttttggagc	acggaaaagac	gatgacggaa	aaagagatcg	2820
tggattacgt	cgccagtc aa	gtaacaaccg	cgaaaaagtt	gcgcggagga	gttgtgtttg	2880
tggacgaagt	accgaaaaggt	cttaccggaa	aactcgacgc	aagaaaaatc	agagagatcc	2940
tcataaaagg	caagaagggc	ggaaagatcg	ccgtgtaatt	ctagaccggt	tcgagatcca	3000
ggcgcggtat	aataaaaagat	cattattttc	aatagatctg	tgtgttggtt	ttttgtgtgc	3060
cttgggggag	ggggaggcca	gaatgaggcg	cggccaaggg	ggagggggag	gccagaatga	3120
ccttggggga	gggggaggcc	agaatgacct	tgggggaggg	ggaggccaga	atgaggcgcg	3180
ccccgatcc	gtcgacgccc	taaggccata	gcggccgccc	tgaggccgcg	ggcgatcgcc	3240
taggggtaac	cgaagtctct	atactttcta	gagaatagga	acttcggaat	aggaacttct	3300
tataatctag	aagatctgga	tccacgattc	gagggcccct	gcaggtcaat	tctaccgggt	3360
aggggaggcg	cttttcccaa	ggcagtctgg	agcatgcgct	ttagcagccc	cgctggcaact	3420
tggcgctaca	caagtggcct	ctggcctcgc	acacattcca	catccaccgg	tagcgccaac	3480
cggctccgtt	ctttggtggc	cccttcgcgc	caccttctac	tcctccocta	gtcaggaagt	3540
tcccccccg	cccgcagctc	gcgtcgtgca	ggacgtgaca	aatggaagta	gcacgtctca	3600
ctagtctcgt	gcagatggac	agcaccgctg	agcaatggaa	gcgggtaggc	ctttgggggc	3660
gcggccaata	gcagctttgc	tccttcgctt	tctgggctca	gaggctggga	aggggtgggt	3720
ccgggggctg	gctcaggggc	gggctcaggg	cggggcgggg	cgcgaaggct	ctcccgaggc	3780
ccggcattct	cgcacgcttc	aaaagcgac	gtctgccgcg	ctgttctcct	cttcctcatc	3840
tccgggcctt	tcgacgatcc	agccgccacc	atgaaaaagc	ctgaactcac	cgcgacgtct	3900
gtcgagaagt	ttctgatcga	aaagttcgac	agcgtctccg	acctgatgca	gctctcggag	3960
ggcgaagaat	ctcgtgcttt	cagcttcgat	gtaggagggc	gtggatatgt	cctgcgggta	4020
aatagctgcg	ccgatggttt	ctacaaagat	cgttatgttt	atcggcactt	tgcatcggcc	4080
gcgctcccga	ttccggaagt	gcttgacatt	ggggaattca	gcgagagcct	gacctattgc	4140
atctcccgcc	gtgcacaggg	tgtcacgttg	caagacctgc	ctgaaaccga	actgcccgct	4200
gttctgcagc	cggtcgcgga	ggccatggat	gccatcgctg	cggccgatct	tagccagacg	4260
agcgggttcg	gcccattcgg	accgcaagga	atcgggtcaat	acactacatg	gcgtgatttc	4320
atatgcgcga	ttgctgatcc	ccatgtgtat	cactggcaaa	ctgtgatgga	cgacaccgtc	4380
agtgcgtccg	tcgcgcagcg	tctcgatgag	ctgatgcttt	gggccgagga	ctgccccgaa	4440
gtccggcacc	tcgtgcacgc	ggatttcggc	tccaacaatg	tcctgacgga	caatggccgc	4500
ataacagcgg	tcattgaactg	gagcgaggcg	atgttcgggg	attcccaata	cgaggctcgc	4560
aacatcttct	tctggaggcc	gtggttggtt	tgtatggagc	agcagacgcg	ctacttcgag	4620
cggaggcatc	cggagcttgc	aggatcgccg	cggctccggg	cgtatatgct	ccgcattggt	4680
cttgaccaac	tctatcagag	cttggttgac	ggcaatttcg	atgatgcagc	ttgggcgagc	4740
ggtcgatgcg	acgcaatcgt	ccgatccgga	gccgggactg	tcgggcgctac	acaaatcgcc	4800
cgcagaagcg	cggccgtctg	gaccgatggc	tgtgtagaag	tactcgccga	tagtggaac	4860
cgacgcccc	gcactcgtcc	gagggcaaa	gaatagtcga	tgcaaaaatt	gatgatctat	4920
taaacaata	agatgtccac	taaaatggaa	gtttttcctg	tcatactttg	ttaagaagg	4980
tgagaacaga	gtacctacat	tttgaatgga	aggattggag	ctacgggggt	gggggtgggg	5040
tgggattaga	taaatgcctg	ctctttactg	aaggctcttt	actattgctt	tatgataatg	5100
tttcatagtt	ggatatcata	atttaaacia	gcaaaaccaa	attaagggcc	agctcattcc	5160
tccactcat	gatctataga	tctatagatc	tctcgtggga	tcattgtttt	tctcttgatt	5220
cccactttgt	ggttctaagt	actgtggttt	ccaaatgtgt	cagtttcata	gcctgaagaa	5280
cgagatcagc	agcctctgtt	ccacatacac	ttcattctca	gtattgtttt	gccaaagtct	5340
aattccatca	gaagctgact	ctagatccctg	caggaattca	tatgaagttc	ctatactttc	5400
tagagaatat	gaacttcgga	ataggaactt	caaaatgtcg	cggcgcgccg	gtaaccgaag	5460
ttcctatact	ttctagagaa	taggaacttc	ggaataggaa	cttcaagctt	aagcgctaga	5520
agatgggctg	gagtcttctg	ggcaggctta	aaggctaacc	tgggtgtgtg	gcgttgtcct	5580
gcaggggaat	tgaacagggtg	taaaattgga	gggacaagac	ttccacaga	ttttcggttt	5640
tgtcgggaag	ttttttaata	ggggcaata	aggaataatg	gaggataggt	agtcactctg	5700
ggttttatgc	agcaaaacta	caggttatta	ttgcttgtga	tcgcctcgg	agtattttcc	5760
atcgaggtag	attaaagaca	tgctcaccgc	agttttatac	tctcctgctt	gagatcctta	5820
ctacagtatg	aaattacagt	gtcgcgagtt	agactatgta	agcagaattt	taatcatttt	5880
taaagagccc	agtacttcat	atccattttc	cccgtcctt	ctgcagcctt	atcaaaaggt	5940
attttagaac	actcatttta	gccccatttt	catttattat	actggcttat	ccaaccctta	6000
gacagagcat	tggcattttc	ccttttctga	tcttagaagt	ctgatgactc	atgaaaccag	6060
acagattagt	tacatacacc	acaaatcgag	gctgtagctg	gggcctcaac	actgcagttc	6120
ttttataact	ccttagtaca	ctttttgttg	atcctttgoc	ttgatcctta	attttcagtg	6180
tctatcacct	ctcccgctcag	tggtgttcca	catttgggcc	tattctcagt	ccagggagtt	6240
ttacaacaat	agatgtattg	agaatccaac	ctaaagotta	actttccact	cccatgaatg	6300
cctctctcct	ttttctccat	ttataaaactg	agctattaac	cattaatggt	tccaggtgga	6360
tgtctcctcc	ccatattacc	tgatgtatct	tacatattgc	caggctgata	ttttaagaca	6420
ttaaaaggta	tatttccatta	ttgagccaca	tggattatgat	tactgcttac	taaaattttg	6480

tcattgtaca	catctgtaaa	aggtggttcc	ttttggaatg	caaagttcag	gtgtttgttg	6540
tctttcctga	cctaaggtct	tgtgagcttg	tattttttct	atthaagcag	tgctttctct	6600
tggactggct	tgactcatgg	cattctacac	gttattgctg	gtctaaatgt	gattttgcca	6660
agcttcttca	ggacctataa	ttttgcttga	cttgtagcca	aacacaagta	aaatgattaa	6720
gcaacaaatg	tattttgtgaa	gcttggtttt	taggttggtg	tggtgtgtgt	gcttgtgctc	6780
tataataata	ctatccaggg	gctggagagg	tggctcggag	ttcaagagca	cagactgctc	6840
ttccagaagt	cctgagttca	attcccagca	accacatggt	ggctcacaac	catctgtaat	6900
gggatctgat	gccctcttct	ggtgtgtctg	aagaccacaa	gtgtattcac	attaaataaa	6960
taaatcctcc	ttcttcttct	tttttttttt	tttaaagaga	atactgtctc	cagtagaatt	7020
tactgaagta	atgaaatact	ttgtgtttgt	tccaatatgg	tagccaataa	tcaaattact	7080
ctttaagcac	tggaaatgtt	accaaggaac	taatttttat	ttgaagtgtg	actgtggaca	7140
gaggagccat	aactgcagac	ttgtgggata	cagaagacca	atgcagactt	taatgtcttt	7200
tctcttacac	taagcaataa	agaaataaaa	attgaacttc	tagtatccta	tttgtttaaa	7260
ctgctagctt	tacttaactt	ttgtgcttca	tctatacaaa	gctgaaaagt	aagtctgcag	7320
ccattactaa	acatgaaagc	aagtaatgat	aatttttgat	ttcaaaaatg	tagggccaga	7380
gttttagccag	ccagtgggtg	tgcttgccct	tatgccttta	atcccagcac	tctggaggca	7440
gagacaggca	gatctctgag	tttgagccca	gcttggctca	cacatcaagt	tctatctagg	7500
atagccagga	atacacacag	aaaccctggt	ggggaggggg	gctctgagat	ttcataaaat	7560
tataattgaa	gcattcccta	atgagccact	atggatgtgg	ctaaatccgt	ctacctttct	7620
gatgagattt	gggtattatt	ttttctgtct	ctgctgttgg	ttgggtcttt	tgacactgtg	7680
ggctttcttt	aaagcctcct	tcttgccatg	tggctctctg	tttgctacta	acttcccatg	7740
gcttaaatgg	catggctttt	tgcccttctaa	gggcagctgc	tgagatttgc	agcctgattt	7800
ccaggggtggg	gttgggaaat	ctttcaaaca	ctaaaattgt	cctttaattt	tttttttaaa	7860
aaatgggtta	tataataaac	ctcataaaat	agttatgagg	agtgaggtgg	actaatatta	7920
aatgagtccc	tcccctataa	aagagctatt	aaggcttttt	gtcttatact	taactttttt	7980
tttaaagtgt	gtatcttttag	aaccaagggt	cttagagttt	tagtatacac	aaactgttgc	8040
atcgcttaat	cagattttct	agtttcaaat	ccagagaatc	caaattcttc	acagccaaag	8100
tcaaattgaa	aatttctgac	ttttaatggt	aatttgctta	ctgtgaatat	aaaaatgata	8160
gcttttcctg	aggcagggtc	tcaactatgta	tctctgcctg	atctgcaaca	agatatgtag	8220
actaaagtcc	tgcttgcctt	tgtctcctga	atactaaggt	taaaatgtag	taatactttt	8280
ggaacttgca	ggtcagattc	ttttataggg	gacacactaa	gggagcttgg	gtgatagtgt	8340
gtaaaatgtg	tttcaagtga	tgaaaacttg	aattattatc	accgcaacct	acttttttaa	8400
aaaaaaagcc	aggcctgtta	gagcatgctt	aagggatccc	taggacttgc	tgagcacaca	8460
agagtagtta	cttggcaggc	tccctggtgag	agcatatttc	aaaaaacaag	gcagacaacc	8520
aagaaactac	agttaagggt	acctgtcttt	aaaccatctg	catatacaca	gggatattaa	8580
aatattccaa	ataatatttc	attcaagttt	tccccatctg	aattgggaca	tggatttctc	8640
cggatgaatg	gcagagttgg	aaactaaaca	aatgttgggt	ttgtgatttg	tgaaattggt	8700
ttcaagtgat	agttaaagcc	catgagatac	agaacaaagc	tgctatttct	aggtctcttg	8760
gtttatactc	agaagcactt	ctttgggttt	ccctgcacta	tccctgatcat	gtgctaggcc	8820
taccttaggc	tgattgttgt	tcaaataaac	ttaagtttcc	tgtcaggtga	tgtcatatga	8880
tttcatatat	caaggcaaaa	catgttatat	atgttaaaca	tttgtactta	atgtgaaagt	8940
taggtctttg	tgggtttgat	ttttaatttt	caaaacctga	gctaaataag	tcatttttac	9000
atgtcttaca	tttggtggaa	ttgtataatt	gtggtttgca	ggcaagactc	tctgacctag	9060
taaccctacc	tatagagcac	tttgctgggt	cacaagtcta	ggagtcaagc	atttcacctt	9120
gaagttgaga	cgtttttgta	gtgtatacta	gtttatatgt	tggaggacat	gtttatccag	9180
aagatattca	ggactatttt	tgactgggct	aaggaaattg	ttctgattag	cactgttagt	9240
gagcatttag	tggccttttag	gcttgaattg	gagtcacttg	tatatctcaa	ataatgctgg	9300
cctttttttaa	aaagcccttg	ttctttatca	ccctgttttc	tacataattt	ttgttcaaag	9360
aaatacttgt	ttggatctcc	ttttgacaac	aatagcatgt	tttcaagcca	tatttttttt	9420
cctttttttt	tttttttttg	gttttttcgag	acagggtttc	tctgtatagc	cctggctgtc	9480
ctggaactca	ctttgtagac	caggctggcc	tcgaactcag	aaatccgcct	gcctctgcct	9540
cctgagtgcc	gggattaaag	gcgtgcacca	ccacgcctgg	ctaagttgga	tattttgtta	9600
tataactata	accaatacta	actccactgg	gtggattttt	aattcagtcg	gtagtcttaa	9660
gtggtcttta	ttggcccttc	attaaaaatct	actgttcact	ctaacagagg	ctgttggtac	9720
tagtggcact	taagcaactt	cctacggata	tactagcaga	ttaaggggtc	gggatagaaa	9780
ctagtctagc	gttttgtata	cctaccagct	ttatactacc	ttgttctgat	agaaatattt	9840
caggacatct	agcacgtgtt	aactcgagct	gcaggattcg	agggccccgg	caggtcaatt	9900
ctaccgggta	ggggaggcgc	ttttcccaag	gcagctgga	gcatgcgctt	tagcagcccc	9960
gctgggcact	tggcgctaca	caagtggcct	ctggcctcgc	acacattcca	catccaccgg	10020
taggcgccaa	cgggctccgt	tctttggtgg	ccccttcgcg	ccaccttcta	ctcctcccct	10080
agtcaggaag	ttcccccccg	ccccgcagct	cgctcgtgct	aggacgtgac	aaatggaagt	10140
agcacgtctc	actagtctcg	tgcatatgga	cagcacgcgt	gagcaatgga	agcgggtagg	10200
cctttggggc	agcggccaat	agcagctttg	ctccttcgct	ttctgggctc	agaggctggg	10260

aaggggtggg	tccggggg	ggctcagggg	cgggctcagg	ggcggggcgg	gcgcccgaag	10320
gtcctccgga	ggcccggcat	tctgcacgct	tcaaaagcgc	acgtctgccc	cgctgttctc	10380
ctcttctca	tctccggg	tttcgacctg	cagccaatgc	accgtccttg	ccatcatggc	10440
ctcgtaaccc	ggccatcaac	acgcgtctgc	gttcgaccag	gctgcgcgtt	ctcgcggcca	10500
tagcaaccga	cgtacggcgt	tgcgccctcg	cgggcagcaa	gaagccacgg	aagtccgccc	10560
ggagcagaaa	atgccacgc	tactgcgggt	ttatatagac	ggtcccccacg	ggatggggaa	10620
aaccaccacc	acgcaactgc	tggtgccct	gggttcgcgc	gacgatatcg	tctacgtacc	10680
cgagccgatg	acttactggc	gggtgctggg	ggcttcggag	acaatcgcg	acatctacac	10740
cacacaacac	cgcctcgacc	agggtgagat	atcgccggg	gacgcggcgg	tggtaatgac	10800
aagcgccag	ataacaatgg	gcatgcctta	tgcctgacc	gacgccgttc	tggctcctca	10860
tatcgggggg	gaggctggga	gctcacatgc	cccgcctccg	gccctcacc	tcatcttcga	10920
ccgccatccc	atcgccgccc	tctgtgcta	ccggccgcgc	cggtacctta	tgggcagcat	10980
gacccccag	gccgtgctgg	cgttcgtggc	cctcatccc	ccgaccttgc	ccggcaccaa	11040
catcgtgctt	ggggcccttc	cggaggacag	acacatcgac	cgcttgcca	aacgccagcg	11100
ccccggcgag	cggctggacc	tggctatgct	ggctgcgatt	cgcgcggtt	acgggctact	11160
tgccaatcac	gtgcggtatc	tgcagtcggg	cgggtcgtgg	cgggaggact	ggggacagct	11220
ttcggggacg	gccgtgccgc	cccaggggtc	cgagccccag	agcaacgcgg	gcccacgacc	11280
ccatatcggg	gacacgttat	ttaccctgtt	tccggccccc	gagttgctgg	ccccaaacgg	11340
cgacctgtat	aacgtgtttg	cctgggcctt	ggacgtcttg	gccaaacgcc	tccgttccat	11400
gcacgtcttt	atcctggatt	acgaccaatc	gcccgcgggc	tgcggggacg	ccctgctgca	11460
acttacctcc	gggatggtec	agacccacgt	caccaccccc	ggctccatac	cgacgatatg	11520
cgacctggcg	cgcacgtttg	cccgggagat	gggggaggct	aactgagggg	atcgatccgt	11580
cctgtaagtc	tgcagaaatt	gatgatctat	taaacaataa	agatgtccac	taaaatggaa	11640
gtttttctctg	tcatactttg	ttaagaaggg	tgagaacaga	gtacctacat	tttgaatgga	11700
aggattggag	ctacgggggt	gggggtgggg	tgggattaga	taaatgcctg	ctctttactg	11760
aaggctcttt	actattgctt	tatgataatg	tttcattagt	ggatatcata	atttaacaa	11820
gcaaaaccaa	attaaggggc	agctcattcc	tcccactcat	gatctataga	tctatagatc	11880
tctcgtggga	tcattgtttt	tctcttgatt	cccactttgt	ggttctaagt	actgtggttt	11940
ccaaatgtgt	cagtttcata	gcctgaagaa	cgagatcagc	agcctctgtt	ccacatacac	12000
ttcattctca	gtattgtttt	gccaaagtct	aattccatca	gaagctgact	ctaggccgag	12060
ctccaattcg	ccctatagtg	agtcgtatta	caattcactg	gccgtcgttt	tacaacgtcg	12120
tgactgggaa	aaccctggcg	ttacccaaact	taatcgctt	gcagcacatc	cccctttcgc	12180
cagctggcgt	aatagcgaa	aggcccgcac	cgatcgccct	tcccaacagt	tgcgcagcct	12240
gaatggcgaa	tgggacgcgc	cctgtagcgg	cgcattaagc	gcggcggtg	tgggtggtac	12300
gcgcagcgtg	accgctacac	ttgccagcgc	cctagcggcc	gctcctttcg	ctttcttccc	12360
ttcctttctc	gccacgtttc	coggctttcc	cogtcaagct	ctaaatcggg	ggctcccttt	12420
agggttccga	tttagtgctt	tacggcacct	cgaccccaaa	aaacttgatt	aggggtgatg	12480
ttcacgtagt	gggccatcgc	cctgatagac	ggtttttcgc	cctttgacgt	tggagtccac	12540
gttctttaat	agtggactct	tgttccaaac	tggaaacaac	ctcaacccta	tctcgggtcta	12600
ttcttttgat	ttataaggga	ttttgccgat	ttcggcctat	tggttaaaaa	atgagctgat	12660
tttaacaaaa	tttaacgcga	attttaacaa	aatattaacg	cttacaattt	aggtggcact	12720
tttcggggaa	atgtgcgcgg	aacccctatt	tgtttatttt	tctaaataca	ttcaaataatg	12780
tatccgctca	tgagacaata	accctgataa	atgcttcaat	aatattgaaa	aaggaagagt	12840
atgagtattc	aacattttccg	tgtcgcctt	attccctttt	ttgcggcatt	ttgccttctc	12900
gtttttgctc	accgagaac	gctggtgaaa	gtaaaagatg	ctgaagatca	gttgggtgca	12960
cgagtgaggt	acatcgaact	ggatctcaac	aacggttaaga	tccttgagag	ttttgcctcc	13020
gaagaacgtt	ttccaatgat	gagcactttt	aaagtctctg	tatgtggcgc	ggtattatcc	13080
cgtattgacg	ccgggcaaga	gcaactcggg	cgccgcatac	actattctca	gaatgacttg	13140
gttgagtact	caccagtcac	agaaaagcat	cttacggatg	gcatgacagt	aagagaatta	13200
tgacgtgctg	ccataaccat	gagtgataac	actgcggcca	acttacttct	gacaacgatc	13260
ggaggaccga	aggagctaac	cgtttttttg	cacaacatgg	gggatcatgt	aactcgcctt	13320
gatcgttggg	aaccggagct	gaatgaagcc	ataccaaaacg	acgagcgtga	caccacgatg	13380
cctgtagcaa	tggcaacaac	gttgcgcaaa	ctattaactg	gcgaactact	tactctagct	13440
tcccggcaac	aattaataga	ctggatggag	gcggataaag	ttgcaggacc	acttctgcgc	13500
tccgcccctc	cggctggctg	gtttattgct	gataaatctg	gagccggtga	gcgtgggtct	13560
cgcggtatca	ttgcagcact	ggggccagat	cgtaagccct	cccgtatcgt	agttatctac	13620
acgacgggga	gtcaggcaac	tatggatgaa	ggaaatagac	agatcgctga	gataggtgcc	13680
tactgatta	agcattggta	actgtcagac	caagtttact	catatatact	ttagattgat	13740
ttaaaacttc	atttttaatt	taaaaggatc	taggtgaaga	tcctttttga	taatctcatg	13800
acaaaaatcc	cttaacgtga	gttttcgttc	cactgagcgt	cagaccccg	agaaaagatc	13860
aaaggatctt	cttgagatcc	tttttttctg	cgcgtaatct	gctgcttgca	aacaaaaaaa	13920
ccaccgctac	cagcggtggt	ttgtttgccc	gatcaagagc	taccaactct	ttttccgaag	13980
gtaactggct	tcagcagagc	gcagatacca	aatactgtcc	ttctagtgtg	gccgtagtta	14040

```

ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct aatcctgtta 14100
ccagtggctg ctgccagtgg cgataagtgc tgtcttaccg ggttggactc aagacgatag 14160
ttaccggata aggcgcagcg gtcgggctga acggggggtt cgtgcacaca gccagcttg 14220
gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg 14280
cttcccgaag ggagaaaagg ggacaggtat ccggtaagcg gcagggtcgg aacaggagag 14340
cgcacgaggg agcttcagg gggaaacgcc tggatatctt atagtccgtg cgggtttcgc 14400
cacctctgac ttgagcgtcg atttttgtga tgctcgtcag gggggcggag cctatggaaa 14460
aacgccagca acgcgccctt tttacggttc ctggcctttt gctggccttt tgctcacatg 14520
ttcttttctg cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagttagct 14580
gataccgctc gccgcagccg aacgaccgag cgcagcgagt cagttagcga ggaagcggaa 14640
gagcgcccaa tacgcaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg 14700
cacgacaggt ttcccgaact gaaagcgggc agtgagcgca acgcaattaa tgtgagttag 14760
ctcactcatt aggcacccca ggctttacac tttatgcttc cggctcgtat gttgtgtgga 14820
attgtgagcg gataacaatt tcacacagga aacagctatg accatgatta cgccaagcgc 14880
gcaattaacc ctactaaaag ggaacaaaag ctgtcgagat ctagatatcg atggccatag 14940
agttacg

```

<210> 5

<211> 4665

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Sequence of
Rluc-H1-shRNA neo insert

<400> 5

```

tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgag tagtccaggg 60
tttcttgat gatgtcatat ttatcctgtc ctttttttt ccacagctcg cggttgagga 120
caaactcttc gcggtctttc cagtactcct gcaggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtagctgt gttaaagcca ccatggcttc caaggtgtac 240
gaccccgagc aacgcaaacc catgatcact gggcctcagt ggtgggctcg ctgcaagcaa 300
atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
gtgatttttc tgcatggtaa cgctgcctcc agtacctgt ggaggcacgt cgtgcctcac 420
atcgagcccg tggtagatg catcatccct gatctgatcg gaatgggtaa gtccggcaag 480
agcgggaatg gtcataatcg cctcctggat cactacaagt acctcacgc ttggttcgag 540
ctgctgaacc ttccaaagaa aatcatcttt gtgggccacg actggggggc ttgtctggcc 600
tttactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
gtggacgtga tcgagtctcg ggacgagtg cctgacatcg aggaggatat cgccctgatc 720
aagagcgaag agggcgagaa aatggtgctt gagaataact tcttcgtcga gaccatgctc 780
ccaagcaaga tcatgcgga actggagcct gaggagtctg ctgcctacct ggagccattc 840
aaggagaagg gcgaggttag acggcctacc ctctcctggc ctgcgagat ccctctcgtt 900
aaggagggca agcccgaagt cgtccagatt gtccgcaact acaacgccta ccttcggggc 960
agcgacgatc tgcctaagat gttcatcgag tccgacctg ggttcttttc caacgctatt 1020
gtcgagggag atgaagaatt ccctaaccac gagttcgtga aggtgaaggg cctccacttc 1080
agccaggag agcgtccaga tgaaatgggt aagtacatca agagcttcgt ggagcgcgtg 1140
ctgaagaacg agcagtaatt ctagaccggt tcgagatcca ggcgcggatc aataaaagat 1200
cattattttc aatagatctg tgtgttggtt ttttgtgtgc cttgggggag ggggaggcca 1260
gaatgaggcg cggccaaggg ggagggggag gccagaatga ccttggggga ggggagggcc 1320
agaatgacct tgggggaggg ggaggccaga atgaggcgcg gatccgtcga cttaattaag 1380
gccagggatc ttcaagcaga cctacagcaa gttcgacaca aactcacaca acgatgacgc 1440
actactcaag aactacgggc tgctctactg cttcaggaag gacatggaca aggtcgagac 1500
attcctgcgc atcgtgcagt gccgctctgt ggagggcagc tgtggcttct agctgcccgg 1560
gtggcatccc tgtgaccctt cccagtgccc tctcctggcc ctggaagttg ccactccagt 1620
gcccaccagc cttgtcctaa taaaattaa tgatcatcatt ttgtctgact aggtgtcctt 1680
ctataatatt attgggtgga ggggggtggt atggagcaag gggcaagttg ggaagacaac 1740
ctgtagggcc tgcggggtct attgggaacc aagctggagt gcagtggcac aatcttggct 1800
cactgcaatc tccgctcctt gggttcaagc gattctcctg cctcagcctc ccgagttggt 1860
gggattccag gcatgcatga ccaggctcag ctaatttttg tttttttggt agagacgggg 1920
tttcaccata ttggccaggc tgggtctcaa ctcctaattc caggtgatct accaccttg 1980
gcctcccaaa ttgctgggat tacaggcgtg aaccactgct cccttcctg tccttctgat 2040
tttaaaataa ctataaccagc aggaggacgt ccagacacag cataggctac ctggccatgc 2100

```

```

ccaaccggtg ggacatttga gttgcttgct tggcactgtc ctctcatgcg ttgggtccac 2160
tcagtagatg cctgttgaat taagcttatt taaataggcc ggccataact tcgtataatg 2220
tatgtctatac gaagttatgg atcctcacag taggtggcat cgttcctttc tgactgcccg 2280
ccccccgcat gcggtcccgc gatattgagc tccgaacctc tcgcccgtgc gccgcccgtg 2340
ctcgcgtgcc gccgcgccgc catggaattc gaacgctgac gtcacaaacc cgctccaagg 2400
aatcgcgggc ccagtgtcac taggcgggaa caccagcgc gcgtgcgcc ttggcaggaag 2460
atggctgtga gggacagggg agtggcgccc tgcaatatct gcatgtcgct atgtgttctg 2520
ggaaatcacc ataaacgtga aatgtctttg gatttgggaa tcttataagt tctgtatgag 2580
accactcttt cccaggattc caattcagcg ggagccacct gatgaagctt gatcgggtgg 2640
ctctcgctga gttggaatcc atttttttct agactcgaga taacttcgta taatgtatgc 2700
tatacgaagt tatggcgcg cggtaaccga agttcctata ctttctagag aataggaact 2760
tcggaatagg aacttcttag gtcaattcta ccgggtaggg gaggcgcttt tcccaaggca 2820
gtctggagca tgcgctttag cagccccgct gggcacttgg cgctacacaa gtggcctctg 2880
gcctcgacac cattccacat ccaccggtag gcgccaaccg gctccgttct ttggtggccc 2940
cttcgcgcca ccttctactc ctcccctagt caggaagttc cccccgccc cgcagctcgc 3000
gtcgtgcagg acgtgacaaa tggaagtagc acgtctcact agtctcgtgc agatggacag 3060
caccgctgag caatggaagc gggtaggcct ttggggcagc ggccaatagc agctttgtct 3120
cttcgctttc tgggctcaga ggctgggaag ggggtgggtcc gggggcgggc tcagggcgcg 3180
gtcagggggc ggggcggggc cccgaaggtc ctccggaggc ccggcattct gcacgcttca 3240
aaagcgcagc tctgccgcgc tgttctctc ttctcatct ccgggccttt cgacctgcag 3300
ccaatatggg atcgccatt gaacaagatg gattgcacgc aggttctccg gccgcttggg 3360
tggaagaggt atteggtat gactgggcac aacagacaat cggctgctct gatgccgcg 3420
tggtccggct gtcagcgagc gggcgcccgc ttctttttgt caagaccgac ctgtccggtg 3480
ccctgaatga actgcaggac gaggcagcgc ggctatcggt gctggccacg acgggcgttc 3540
cttgccgagc tgtgctcgac gttgtcactg aagcgggaag ggactggctg ctattggcg 3600
aagtgccggg gcaggatctc ctgtcatctc acctgtctcc tgccgagaaa gtatccatca 3660
tggtgatgc aatgcggcg ctgcatacgc ttgatccggc tacctgccc ttcgaccacc 3720
aagcgaacac tcgcatcgag cgagcacgta ctcgatgga agccggtctt gtcgatcagg 3780
atgatctgga cgaagagcat caggggctcg cgccagccga actgttcgcc aggtcaagg 3840
cgcgcatgcc cgacggcgag gatctcgctg tgacccatgg cgatgcctgc ttgccgaata 3900
tcatggtgga aaatggcg ctttctggat tcatcgactg tggccggctg ggtgtggcg 3960
accgctatca ggacatagc ttggctaccc gtgatattgc tgaagagctt ggcggcgaat 4020
gggctgaccg cttcctcggt ctttacggta tcgcccgtcc cgattcgagc cgcacgcct 4080
tctatcgct tcttgacgag ttcttctgag gggatcgatc cgctgtaagt ctgcagaaat 4140
tgatgatcta ttaaacaata aagatgtcca ctaaaatgga agtttttct gtcatacttt 4200
gttaagaagg gtgagaacag agtacctaca ttttgaatgg aaggattgga gctacgggg 4260
tggggggtgg gtgggattag ataaatgcct gctctttact gaaggctctt tactattgct 4320
ttatgataat gtttcatagt tgatatcat aatttaaaca agcaaaaacca aattaagggc 4380
cagctcattc ctcccactca tgatctatag atctatagat ctctcgtggg atcattgttt 4440
ttctcttgat tcccactttg tggttctaag tactgtgggt tccaaatgtg tcagtttcat 4500
agcctgaaga acgagatcag cagcctctgt tccacataca cttcattctc agtattgttt 4560
tgccaagttc taattccatc agaagctgac tctagatccc gcgccgaagt tcctatactt 4620
tctagagaat aggaacttcg gaataggaac ttcaagctta agcgc 4665

```

<210> 6

<211> 15199

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Targeting
vector for Rosa26 locus with Rluc-H1-shRNA neo
insert

<400> 6

```

ctagggataa cagggttaata tagccgcggc aggccctccg agcgtggtgg agccgttctg 60
tgagacagcc gggtagcaggt cgtgacgctg gaaggggcaa gcgggtggtg ggcaggaatg 120
cggctccgcc tgcagcaacc ggagggggag ggagaaggga gcggaaaagt ctccaccgga 180
cgcgcccatg gctcgggggg gggggggcag cggaggagcg cttccggccc acgtctcgtc 240
gctgattggc ttcttttctt cccgcctgtg gtgaaaacac aaatggcgtg ttttggttgg 300
cgtaaggcgc ctgtcagtta acggcagccg gagtgcgcag ccgccggcag cctcgcctctg 360
cccactgggt ggggcgggag gtaggtgggg tgaggcgagc tggacgtgcg ggcgcggctg 420

```

gcctctggcg gggcggggga ggggagggag ggtcagcgaa agtagctcgc gcgcgagcgg 480
 ccgcccaccc tccccctcct ctgggggaggt cgtttttaccc gccgcccggcc gggcctcgtc 540
 gtctgattgg ctctcggggc ccagaaaact ggcccttgcc attggctcgt gttcgtgcaa 600
 gttgagtgca tccgcgggcc agcggggggcg gcgaggaggc gctcccaggt tccggccctc 660
 ccctcggccc cgcgcgcgag agtctggccg cgcgcccctg cgcaacgtgg caggaaagcgc 720
 gcgctggggg cggggacggg cagtaggggt gagcggctgc ggggcgggtg caagcacgtt 780
 tccgacttga gttgcctcaa gaggggcgtg ctgagccaga cctccatcgc gcactccggg 840
 gagtggaggg aaggagcgag ggctcagttg ggctgttttg gaggcaggaa gcacttgctc 900
 tcccaaagtc gctctgagtt gttatcagta agggagctgc agtggagtag gcggggagaa 960
 ggccgcaccc ttctccggag gggggagggg agtgttgcaa tacctttctg ggagttctct 1020
 gctgcctcct ggcttctgag gaccgccctg ggctggggag aatcccttcc cctcttccc 1080
 tcgtgatctg caactccagt ctttctaggt aaccgatatc cctgcagggg tgacctgcac 1140
 gtctagggcg cagtagtgca gggtttctt gatgatgtca tacttatcct gtcccttttt 1200
 tttccacagc tcgcggttga ggacaaactc ttcgcggtct ttccagtact cctgcaggtg 1260
 actgactgag tcgagatctg cgatctaagt aagcttggca ttccgggtact gttggtaaag 1320
 ccaccatggc ttccaaggtg tacgaccccg agcaacgcaa acgcatgatc actgggcctc 1380
 agtggtgggc tcgctgcaag caaatgaacg tgctggactc cttcatcaac tactatgatt 1440
 ccgagaagca cgcgcgagaa gccgtgattt ttctgcatgg taacgctgcc tccagctacc 1500
 tgtggaggca cgtcgtgcct cacatcgagc ccgtggctag atgcatcctc cctgatctga 1560
 tcggaatggg taagtccggc aagagcggga atggctcata tcgctcctg gatcactaca 1620
 agtacctcac cgcttgggtt gagctgctga accttccaaa gaaaatcctc tttgtggggc 1680
 acgaactggg ggcttgtctg gcctttcact actcctacga gcaccaagac aagatcaagg 1740
 ccatcgctca tgctgagagt gtctggagc tgatcgagtc ctgggacgag tggcctgaca 1800
 tcgaggagga tatcgccctg atcaagagcg aagagggcga gaaaatgggt cttgagaata 1860
 acttcttcgt cgagaccatg ctccaagca agatcatgcg gaaactggag cctgaggagt 1920
 tcgctgccta cctggagcca ttcaaggaga agggcgaggt tagacggcct acctctcct 1980
 ggcctcgcga gatccctctc gttaagggag gcaagcccga cgtcgtccag attgtccgca 2040
 actacaacgc ctaccttcgg gccagcgacg atctgcctaa gatgttcacg gagtccgacc 2100
 ctgggttctt ttccaacgct attgtcgagg gagctaagaa gttccctaac accgagttcg 2160
 tgaagggtga gggcctccac ttcagccagg aggacgctcc agatgaaatg ggtaagtaca 2220
 tcaagagctt cgtggagcgc gtgctgaaga acgagcagta attctagacc ggttcgagat 2280
 ccaggcgcgg atcaataaaa gatcattatt ttcaatagat ctgtgtgttg gttttttgtg 2340
 tgccctgggg gagggggagg ccagaatgag gcgcggccaa gggggagggg gaggccagaa 2400
 tgaccttggg ggagggggag gccagaatga ccttggggga gggggaggcc agaatgaggc 2460
 gcggatccgt cgacttaatt aaggccaggg atcttcaagc agacctacag caagttcgac 2520
 acaaactcac acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg 2580
 aaggacatgg acaaggtcga gacattcctg cgcategtgc agtgccgctc tgtggagggc 2640
 agctgtggct tctagctgcc cgggtggcat ccctgtgacc cctccccagt gcctctcctg 2700
 gccctggaag ttgccactcc agtgcccacc agccttgtcc taataaaatt aagttgcac 2760
 attttgtctg actaggtgtc cttctataat attatgggtt ggaggggggt ggtatggagc 2820
 aaggggcaag ttgggaagac aacctgtagg gcctgcgggg tctattggga accaagctgg 2880
 agtgacgtg cacaatcttg gctcactgca atctccgct cctgggttca agcgattctc 2940
 ctgcctcagc ctcccaggtt gttgggattc caggcatgca tgaccaggct cagctaattt 3000
 ttgttttttt ggtagagacg gggtttcacc atattggcca ggctgggtct caactcctaa 3060
 tctcaggtga tctaccaccc ttggcctccc aaattgctgg gattacaggc gtgaaccact 3120
 gctcccttcc ctgtccttct gattttaaaa taactatacc agcaggagga cgtccagaca 3180
 cagcataggg tacctggcca tgcccaaccg gtgggacatt tgagttgctt gcttggcact 3240
 gtcctctcat gcgttgggtc cactcagtag atgctgttg aattaagctt atttaaatag 3300
 gccggccata acttcgtata atgtatgcta tacgaagtta tggatcctca cagtaggtgg 3360
 catcgttctt ttctgactgc ccgcccccg catgcccgtc cgcgatattg agctccgaac 3420
 ctctcgcctt gccgcgcgc gtgctccgtc gccgcgcgc cgcgatggaa ttcgaacgct 3480
 gagctcatca acccgctcca aggaatcgcg ggcccagtg cactaggcgg gaacaccag 3540
 cgcgcgtgcg ccctggcagg aagatggctg tgagggacag gggagtggcg ccttgcaata 3600
 tttgcatgtc gctatgtgtt ctgggaaatc accataaacg tgaaatgtct ttggatttgg 3660
 gaattctata agttctgtat gagaccactc tttcccagga ttccaattca gcgggagcca 3720
 cctgatgaag cttgatcggt tggtctctgc tgagttggaa tccatttttt tctagactcg 3780
 agataacttc gtataatgta tgctatacga agttatggcg cgcggtaac cgaagttcct 3840
 atactttcta gagaatagga acttcggaat aggaacttct taggtcaatt ctaccgggta 3900
 ggggagggcg ttttcccaag gcagtctgga gcatgcgctt tagcagcccc gctgggcact 3960
 tggcgctaca caagtggcct ctggcctcgc acacattcca catccaccgg taggcgcca 4020
 ccggctccgt tctttgggtg ccccttcgcg ccaccttcta ctctccctt agtcaggag 4080
 ttcccccccg ccccgagct cgcgtcgtgc aggacgtgac aaatggaagt agcacgtctc 4140
 actagtctcg tgcagatgga cagcaccgct gagcaatgga agcgggtagg cctttggggc 4200

```

agcgggccaat agcagctttg ctccttcgct ttctgggctc agaggctggg aaggggtggg 4260
tccggggggcg ggctcagggg cgggctcagg ggcggggcg ggcgccgaag gtcctccgga 4320
ggccccgcat tctgcacgct tcaaaagcgc acgtctgccc cgctgttctc ctcttctca 4380
tctccgggccc tttcgacctg cagccaatat gggatcgggc attgaacaag atggattgca 4440
cgcaggttct cggcgcgctt gggtagagag gctattcggc tatgactggg cacaacagac 4500
aatcggtgc tctgatgccg ccgtgttccg gctgtcagcg caggggccc cggttctttt 4560
tgtcaagacc gacctgtccg gtgcccgtgaa tgaactgcag gacgaggcag cgcggctatc 4620
gtggctggcc acgacgggcg ttccttgccg agctgtgctc gacgttgtca ctgaagcggg 4680
aagggaactgg ctgctattgg gcgaagtgcc ggggcaggat ctctgtcat ctcaccttgc 4740
tctgcccag aaagtatcca tcatggctga tgcaatgcgg cggctgcata cgcttgatcc 4800
ggctacctgc ccattcgacc accaagcgaa acatgcgcat gagcgagcac gtactcggat 4860
ggaagccggg cttgtcgatc aggatgatct ggacgaagag catcaggggc tcgcgccagc 4920
cgaactgttc gccaggctca aggcgcgcac gccgcagcggc gaggatctcg tcgtgacca 4980
tggcgatgcc tgcttgccga atatcatggt ggaaaatggc cgcttttctg gattcatcga 5040
ctgtggccgg ctgggtgtgg cggaccgcta tcaggacata gcgttggcta cccgtgatat 5100
tgctgaagag cttggcgggc aatgggctga ccgcttccctc gtgctttacg gtatcgccgc 5160
tcccgattcg cagcgcatcg ccttctatcg ccttcttgac gaggttctct gaggggatcg 5220
atccgctgta agtctgcaga aattgatgat ctattaaaca ataaagatgt ccactaaaat 5280
tgaagttttt cctgtcatac tttgttaaga agggtagaaa cagagtacct acattttgaa 5340
tggaaggatt ggagctacgg gggtaggggt ggggtgggat tagataaatg cctgctcttt 5400
actgaaggct ctttactatt gctttatgat aatgtttcat agttggatat cataatttaa 5460
aaaagcaaaa ccaaatgaag ggccagctca ttcctcccac tcatgatcta tagatctata 5520
gatctctcgt gggatcattg tttttctctt gattcccact ttgtggttct aagtactgtg 5580
gtttccaaat gtgtcagttt catagcctga agaacgagat cagcagcctc tgttccacat 5640
acacttcatt ctcagtattg ttttgccaag ttctaattcc atcagaagct gactctagat 5700
cccgcgccga agttcctata ctttctagag aataggaact tcggaatagg aacttcaagc 5760
ttaagcgcta gaagatgggc gggagtcctc tgggcaggct taaaggctaa cctgggtgtg 5820
ggcggtgtgc ctgcagggga attgaacagg tgtaaaattg gagggacaag acttcccaca 5880
gattttcggg tttgtcggga agttttttaa taggggcaaa taaggaaaat gggaggatag 5940
gtagtcatct ggggttttat gcagcaaaac tacaggttat tattgcttgt gatccgcctc 6000
ggagtatttt ccctcgaggt agattaaaga catgctcacc cgagttttat actctcctgc 6060
ttgagatcct tactacagta tgaaattaca gtgtcgcgag ttagactatg taagcagaat 6120
tttaatcatt tttaaagagc ccagtacttc atatccattt tagccccatt ttctgcagcc 6180
ttatcaaaaag gtattttaga acactcattt tagccccatt ttctgttagaa gtctgatgac 6240
atccaacccc tagacagagc attggcattt cctcttctct gatcttagaa gtctgatgac 6300
tcatgaaacc agacagatta gttacatata ccacaaatcg aggtgtagc tggggcctca 6360
acactgcagt ctctttataa ctccttagta cactttttgt tgatcctttg ccttgatcct 6420
taattttcag tgtctatcac ctctcccgtc agtgggtgtc cacatttggg cctatttctca 6480
gtccaggag ttttacaaca atagatgtat tgagaatcca acctaaagct taactttcca 6540
ctcccatgaa tgctctctc ctttttctcc atttataaac tgagctatta accattaatg 6600
gttccagggt gatgtctcct ccccatatta cctgatgtat cttacatatt gccaggctga 6660
tatttttaaga cattaaaagg tatatttcat tattgagcca catggtattg attactgctt 6720
actaaaattt tgtcattgta cacatctgta aaagggtggt ccttttggaa tgcaaagttc 6780
aggtgtttgt tgtcttctct gacctaaagg cttgtgagct tgtatttttt ctatttaagc 6840
agtgttttct cttggactgg cttgactcat ggcattctac acgttattgc tgggtctaaat 6900
gtgattttgc caagcttctt caggacctat aattttgctt gactttagac caaacacaag 6960
taaaatgatt aagcaacaaa tgtatttgtg aagcttggtt tttagggtgt tgtgttgtgt 7020
gtgcttgtgc tctataataa tactatccag gggctggaga ggtggctcgg agttcaagag 7080
cacagactgc tcttcagaa gtctgagtt caattcccag caaccacatg gtggctcaca 7140
accatctgta atgggatctg atgcctctt ctgggtgtgtc tgaagaccac aagtgtattc 7200
acattaaata aataaatcct ccttcttctt cttttttttt ttttttaaga gaatactgtc 7260
tccagtagaa tttactgaag taatgaaata ctttgtgttt gttccaatat ggtagccaat 7320
aatcaaatta ctctttaagc actggaaatg ttaccaagga acttggtgga tacagaagac caatgcagac 7440
taactgtgga cagaggagcc ataactgcag acttggtgga aaattgaact tctagtatcc 7500
tttaatgtct tttctcttac actaagcaat aaagaaataa catctataca aagctgaaag 7560
tatttgttta aactgctagc tttacttaac ttttgtgctt ataatttttg atttcaaaaa 7620
ctaagtctgc agccattact aaacatgaaa gcaagtaatg tttatgcctt taatcccagc 7680
tgtagggcca gagtttagcc agccagtggg ggtgcttgcc tttatgcctt tacacatcaa 7740
actctggagg cagagacagg cagatctctg agtttgagcc cagcctggtc tgggggaggg gggctctgag 7800
gttctatcta ggatagccag gaatacacac agaaaccctg ctatggatgt ggctaaatcc 7860
atttcataaa attataattg aagcattccc taatgagcca ctctgctgtt ggttgggtct 7920
gtctaccttt ctgatgagat ttgggtatta ttttttctgt tgtgtgtctt tgtttgctac 7980
tttgacactg tgggctttct ttaaagcctc cttcctgcca tgtgtgtctt

```


taacttccca	tggcttaaat	ggcatggcct	tttgccttct	aagggcagct	gctgagattt	8040
gcagcctgat	ttccagggtg	gggttgggaa	atctttcaaa	cactaaaatt	gtcctttaat	8100
ttttttttta	aaaaatgggt	tatataataa	acctcataaa	atagttatga	ggagtggagt	8160
ggactaatat	taaatgagtc	cctcccctat	aaaagagcta	ttaaggcttt	ttgtcttata	8220
cttaactttt	tttttaaatg	tggatatctt	agaaccaagg	gtcttagagt	tttagtatac	8280
agaaactggt	gcatocttta	atcagatttt	ctagtttcaa	atccagagaa	tccaaattct	8340
tcacagccaa	agtcaaatta	agaattttctg	acttttaatg	ttaattttgct	tactgtgaat	8400
ataaaaatga	tagctttttcc	tgaggcaggg	tctcactatg	tatctctgcc	tgatctgcaa	8460
caagatatgt	agactaaagt	tctgcctgct	tttgtctcct	gaataactaag	gttaaaatgt	8520
agtaatactt	ttggaacttg	caggtcagat	tcttttatag	gggacacact	aaggggagctt	8580
gggtgatagt	tggtaaaatg	tgtttcaagt	gatgaaaact	tgaattatta	tcaccgcaac	8640
ctacttttta	aaaaaaaaag	ccaggcctgt	tagagcatgc	ttaagggatc	cctaggactt	8700
gctgagcaca	caagagtagt	tacttggcag	gtccttggtg	agagcatatt	tcaaaaaaca	8760
aggcagacaa	ccaagaaact	acagttaagg	ttacctgtct	ttaaaccatc	tgcatatata	8820
cagggatatt	aaaatatctc	aaataatatt	tcattcaagt	tttcccccat	caaattggga	8880
catggatttc	tccggtgaat	aggcagagtt	ggaaaactaaa	caaagtgttg	ttttgtgatt	8940
tgtgaaattg	ttttcaagtg	atagttaaag	cccattgagat	acagaacaaa	gctgctattt	9000
cgaggctctt	tggttttatac	tcagaagcac	ttctttgggt	ttccctgcac	tatcctgata	9060
atgtgctagg	cctaccttag	gctgattggt	gttcaaataa	acttaagttt	cctgtcaggt	9120
gatgtcatat	gatttcatat	atcaaggcaa	aacatgttat	atatgttaaa	catttgtact	9180
taatgtgaaa	gttaggtctt	tgtgggtttg	atttttaatt	ttcaaaacct	gagctaaata	9240
agtcattttt	acatgtctta	catttggtgg	aattgtatna	ttgtgggttg	caggcaagac	9300
tctctgacct	agtaacccta	cctatagagc	actttgctgg	gtcacaagtc	taggagtcac	9360
gcatttcacc	ttgaagttga	gacgttttgt	tagtgtatac	tagtttatat	gttggaggac	9420
atgtttatcc	agaagatatt	caggactatt	tttgactggg	ctaaggaatt	gattctgatt	9480
agcactgtta	gtgagcattg	agtggccttt	aggcttgaat	tggagtcact	tgtatatctc	9540
aaataatgct	ggcctttttt	aaaaagccct	tgtcttttat	caccctgttt	tctacataat	9600
ttttgttcaa	agaaatactt	gtttggatct	ccttttgaca	acaatagcat	gttttcaagc	9660
catatttttt	ttcctttttt	tttttttttt	tggtttttcg	agacagggtt	tctctgtata	9720
gccctggctg	tcctggaact	cactttgtag	accaggctgg	cctcgaactc	agaaatccgc	9780
ctgcctctgc	ctcctgagtg	ccgggattaa	aggcgtgcac	caccacgcct	ggctaagttg	9840
gatattttgt	tatataacta	taaccaatac	taactccact	gggtggattt	ttaattcagt	9900
cagtagtctt	aagtggctct	tattggccct	tcattaaaat	ctactgttca	ctctaacaga	9960
ggctgttggt	actagtggca	cttaagcaac	ttcctacgga	tatactagca	gattaagggg	10020
cagggataga	aactagtcta	gcgttttgta	tacctaccag	ctttatacta	cottgttctg	10080
atagaaatat	ttcaggacat	ctagcacgtg	ttaactcgag	ctgcaggatt	cgaggggccc	10140
ggcaggtcaa	ttctaccggg	taggggaggg	gcttttccca	aggcagtcctg	gagcatgcgc	10200
tttagcagcc	ccgctgggca	cctggcgcta	cacaagtggc	ctctggcctc	gcacacatat	10260
cacatccacc	ggtaggcgcc	aaccggctcc	gttctttggt	ggccccttcg	cgccaccttc	10320
tactcctccc	ctagtccagg	agttcccccc	cgccccgcag	ctcgcgtcgt	gcaggacgtg	10380
acaaatggaa	gtagcacgtc	tcactagtct	cgtgcagatg	gacagcacgc	ctgagcaatg	10440
gaagcgggta	ggcctttggg	gcagcggcca	atagcagctt	tgctccttcg	ctttctgggc	10500
tcagaggctg	ggaaggggtg	ggtccggggg	cgggctcagg	ggcgggctca	ggggcggggc	10560
gggcgcccga	aggtcctccg	gaggcccggc	attctgcacg	cttcaaaagc	gcacgtctgc	10620
cgcgctgttc	tcctcttcct	catctccggg	cctttcgacc	tgcagccaat	gcaccgtcct	10680
tgccatcatg	gcctcgtacc	ccggccatca	acacgcgtct	gcgttcgacc	aggctgcgcg	10740
ttctcggggc	catagcaacc	gacgtacggc	gttgcgccct	cgccggcagc	agaagccac	10800
ggaagtccgc	ccggagcaga	aaatgccacc	gctactgcgg	gtttatatag	acggtcccca	10860
cgggatgggg	aaaaccacca	ccacgcaact	gctggtggcc	ctgggttcgc	gcgacgatct	10920
cgtctacgta	cccagaccga	tgacttactg	gcgggtgctg	ggggcttcgc	agacaatcgc	10980
gaacatctac	accacacaac	accgcctcga	ccagggtgag	atatcgcccg	gggacgcggc	11040
ggtggtaatg	acaagcggcc	agataacaat	gggcatgcct	tatgccgtga	ccgacgcctg	11100
tctggctcct	catatcgggg	gggaggctgg	gagctcacat	gccccgcccc	cgccctcac	11160
cctcatcttc	gaccgccatc	ccatcgccgc	cctcctgtgc	taccggcccg	cgcggtacct	11220
tatgggcagc	atgaccccc	aggcctgtgt	ggcgttcgtg	gccctcatcc	cgccgacctt	11280
gcccggcacc	aacatcgtgc	ttggggccct	tccggaggac	agacacatcg	accgcctggc	11340
caaacgccag	cgccccggcg	agcggctgga	cctggctatg	ctggctgcga	ttcgccgcgt	11400
ttacgggcta	cttgccaata	cgggtgcggta	tctgcagtgc	ggcgggtcgt	ggcgggagga	11460
ctggggacag	ctttcgggga	cggccgtgcc	gccccagggt	gccgagcccc	agagcaacgc	11520
gggcccacga	ccccatatcg	gggacacgtt	atttaccctg	tttcggggcc	ccgagtgtgt	11580
ggcccccaac	ggcgacctgt	ataacgtgtt	tgccctggcc	ttggacgtct	tggccaaacg	11640
cctccgttcc	atgcacgtct	ttatcctgga	ttacgaccaa	tcgcccgcgc	gctgccggga	11700
cgccctgctg	caacttacct	ccgggatggg	ccagaccacc	gtcaccacc	ccggctccat	11760

accgacgata	tgcgacctgg	cgcgcaacgtt	tgccccgggag	atggggggagg	ctaactgagg	11820
ggatcgatcc	gtcctgtaag	tctgcagaaa	ttgatgatct	attaaacaat	aaagatgtcc	11880
actaaaaatgg	aagttttttcc	tgtcataactt	tgtaagaag	ggtgagaaca	gagtacctac	11940
atthttgaatg	gaaggatttg	agctacgggg	gtgggggtgg	ggtgggatta	gataaatgcc	12000
tgctctttac	tgaaggctct	ttactattgc	tttatgataa	tgtttcatag	ttggatatca	12060
taattttaaac	aagcaaaacc	aaattaaggg	ccagctcatt	cctcccactc	atgatctata	12120
gatctataga	tctctcgtgg	gatcattggt	tttctcttga	ttcccacttt	gtggttctaa	12180
gtactgtggt	ttccaaatgt	gtcagtttca	tagcctgaag	aacgagatca	gcagcctctg	12240
ttccacatac	acttcattct	cagtattggt	ttgccaaagt	ctaattccat	cagaagctga	12300
ctctaggccg	agctccaatt	cgccctatag	tgagtcgtat	tacaattcac	tggcgcgtcg	12360
tttacaacgt	cgtgactggg	aaaaccctgg	cgttacccaa	cttaatcgcc	ttgcagcaca	12420
tccccctttc	gccagctggc	gtaatagcga	agaggcccg	accgatcgcc	cttcccaca	12480
ggtgcgagc	ctgaatggcg	aatgggacgc	gccctgtagc	ggcgcatata	gcgcggcggg	12540
tgtggtggtt	acgcgcagcg	tgaccgctac	acttgccagc	gccctagcgc	ccgctccttt	12600
cgctttcttc	ccttcctttc	tgcgcacgtt	cgccggcttt	ccccgtcaag	ctctaaatcg	12660
ggggctcccg	ttagggttcc	gatttagtgc	tttacggcac	ctcgacccca	aaaaacttga	12720
ttagggtgat	ggttcacgta	gtggggccatc	gccctgatag	acggtttttc	gccctttgac	12780
gttggagtcc	acgttcttta	atagtggact	cttggtccaa	actggaacaa	cactcaaaccc	12840
tatctcggtc	tattcttttg	atthtataagg	gattttgccg	atthtcggcct	atthggttaaa	12900
aaatgagctg	atthtaacaaa	aatthtaacgc	gaattthtaac	aaaatattaa	cgcttacaat	12960
ttagggtggca	cttttcgggg	aaatgtgcgc	ggaaccccta	tttggtttatt	tttctaaata	13020
oatthcaaatg	tgtatccgct	catgagacaa	taaccctgat	aaatgcttca	ataatattga	13080
aaaagggaaga	gtatgagtat	tcaacatttc	cgtgtcgcgc	ttattccctt	ttttgcggca	13140
ttttgccttc	ctgtttttgc	tcacccagaa	acgctggtga	aagtaaaaga	tgctgaagat	13200
cagttgggtg	cacgagtggg	ttacatcgaa	ctggatctca	acagcggtaa	gatccttgag	13260
agttttcgcc	ccgaagaacg	ttttccaatg	atgagcactt	ttaaagtctt	gctatgtggc	13320
gcggtattat	cccgtattga	cgccgggcaa	gagcaactcg	gtcgcgcgat	acactattct	13380
cagaatgact	tggttgagta	ctcaccagtc	acagaaaagc	atcttacgga	tggcattgaca	13440
gtaagagaat	tatgcagtgc	tgccataacc	atgagtgata	acactgcggc	caacttactt	13500
ctgacaacga	tcggaggacc	gaaggagcta	accgcttttt	tgcaacaacat	gggggatcat	13560
gtaactcgcc	ttgatcgttg	ggaaccggag	ctgaatgaag	ccataccaaa	cgacgagcgt	13620
gacaccacga	tgccctgtagc	aatggcaaca	acgttgcgca	aactattaac	tggcgaacta	13680
cttactctag	cttcccggca	acaattaata	gactggatgg	aggcggataa	agttgcagga	13740
ccacttctgc	gctcggccct	tcgggtggtg	tggtttattg	ctgataaatc	tgagagccgg	13800
gagcgtgggt	ctcgcgggtat	cattgcagca	ctggggccag	atggttaagcc	ctcccgtatc	13860
gtagttatct	acacgacggg	gagtcaggca	actatggatg	aacgaaatag	acagatcgct	13920
gagatagggt	cctcactgat	taagcatttg	taactgtcag	accaagttta	ctcatatata	13980
ctttagattg	atthtaaaact	tcatttttaa	tttaaaagga	tctaggtgaa	gatccttttt	14040
gataatctca	tgacaaaaat	cccttaacgt	gagttttcgt	tccactgagc	gtcagacccc	14100
gtagaaaaga	tcaaaggatc	ttcttgagat	cctttttttc	tgcgcgtaat	ctgctgcttg	14160
caaacaaaaa	aaccaccgct	accagcgggtg	gtttgtttgc	cggatcaaga	gctaccaact	14220
ctttttccga	aggtaactgg	cttcagcaga	gcgcagatac	caaatactgt	ccttctagt	14280
tagccgtagt	taggccacca	cttcaagaac	tctgtagcac	cgccacata	cctcgcctctg	14340
ctaatacctgt	taccagtggc	tgctgccagt	ggcgataagt	cgtgtcttac	cggtgtggac	14400
tcaagacgat	agttaccgga	taaggcgag	cggtcgggct	gaacgggggg	ttcgtgcaca	14460
cagcccagct	tggagcgaac	gacctacacc	gaactgagat	acctacagcg	tgagctatga	14520
gaaagcgcca	cgcttcccga	agggagaaa	gcggacaggt	atccggtaag	cggcagggtc	14580
ggaacaggag	agcgcacgag	ggagcttcca	gggggaaacg	cctggtatct	ttatagtcct	14640
gtcgggtttc	gccacctctg	acttgagcgt	cgatttttgt	gatgctcgtc	aggggggcgg	14700
agcctatgga	aaaacgccag	caacgcggcc	tttttacggt	tcctggcctt	ttgctggcct	14760
tttgctcaca	tggtcttttc	tgcgttatcc	cctgattctg	tgataaacg	tattaccgcc	14820
tttgagttag	ctgataccgc	tcgcgcgagc	cgaacgaccg	agcgcagcga	gtcagtgagc	14880
gaggaagcgg	aagagcggcc	aatacgcaaa	ccgcctctcc	ccgcgcgttg	gccgattcat	14940
taatgcagct	ggcacgacag	gtttcccgac	tggaaagcgg	gcagtgagcg	caacgcaatt	15000
aatgtgagtt	agctcactca	ttaggcacc	caggctttac	actttatgct	tcgggctcgt	15060
atgttggtg	gaattgtgag	cggataacaa	tttcacacag	gaaacagcta	tgaccatgat	15120
tacgccaaagc	gcgcaattaa	ccctcactaa	agggaaacaaa	agctgtcgag	atctagatat	15180
cgatggccat	agagttacg					15199

<210> 7

<211> 4640

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Sequence of
Rluc-U6-shRNA neo insert

<400> 7

```

tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgcag tagtccaggg 60
tttccttgat gatgtcatatc ttatcctgtc cttttttttt ccacagctcg cggttgagga 120
caaactcttc gcggtctttc cagtactcct gcaggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtagctgt ggtaaagcca ccatggcttc caaggtgtac 240
gaccccgagc aacgcaaacg catgatcact gggcctcagt ggtgggctcg ctgcaagcaa 300
atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
gtgatttttc tgcattgtaa cgctgcctcc agctacctgt ggaggcacgt cgtgcctcac 420
atcgagcccg tggctatagc catcatccct gatctgacgc gaatgggtaa gtccggcaag 480
agcgggaatg gctcatatcg cctcctggat cactacaagt acctcacgcg ttggttcgag 540
ctgctgaacc ttccaaagaa aatcatcttt gtgggccacg actggggggc ttgtctggcc 600
tttactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
gtggacgtga tcgagtcctg ggacgagtg cctgacatcg aggaggatat cgccctgac 720
aagagcgaag agggcgagaa aatggtgctt gagaataact tcttcgtcga gaccatgctc 780
ccaagcaaga tcatgcgga actggagcct gaggagtctg ctgcctacct ggagccattc 840
aaggagaagg gcgaggttag acggcctacc ctctcctggc ctgcgcgagat cctctctggt 900
aaggagggca agcccgacgt cgtccagatt gtccgcaact acaacgccta ccttcgggcc 960
agcgacgac tcgctaagat gttcatcgag tccgaccctg ggttcttttc caacgctatt 1020
gtcgagggag ctaagaagtt ccctaaccac gatttcgtga aggtgaaggg cctccacttc 1080
agccaggagg acgctccaga tgaaatgggt aagtacatca agagcttcgt ggagcgctg 1140
ctgaagaacg agcagtaatt ctgacccggt tcgagatcca ggcgcggatc aataaaagat 1200
cattattttc aatagatctg tgtgttggt tttgtgtgc cttgggggag ggggaggcca 1260
gaatgaggcg cgccaaggg ggagggggag gccagaatga ccttggggga gggggaggcc 1320
agaatgacct tgggggagg ggaggccaga atgaggcgcg gatccgtcga cttaattaag 1380
gccagggatc ttcaagcaga cctacagcaa gttcgacaca aactcacaca acgatgacgc 1440
actactcaag aactacgggc tgcctactg cttcaggaag gacatggaca aggtcgagac 1500
attcctgcgc atcgtgcagt gccgctctgt ggagggcagc tgtggcttct agctgcccg 1560
gtggcatccc tgtgaccct cccagtgcc tctcctggcc ctggaagtgt cactccagt 1620
gcccaccagc cttgtcctaa taaaattaag ttgcatcatt ttgtctgact aggtgtcctt 1680
ctataatatt atggggtgga ggggggtggt atggagcaag gggcaagtgt ggaagacaac 1740
ctgtagggcc tgcggggtct attgggaacc aagctggagt gcagtggcac aatcttggt 1800
cactgcaatc tccgcctcct gggttcaagc gattctcctg cctcagcctc ccgagttgtt 1860
gggattccag gcatgcatga ccaggctcag ctaatttttg tttttttggt agagcgggg 1920
tttcaccata ttggccaggc tggctccaa ctccaatct caggatgatc acccaccttg 1980
gcctcccaa ttgctgggat tacaggcgtg aaccactgct cccttcctg tcttctgat 2040
tttaaaataa ctataccagc aggaggacgt ccagacacag cataggctac ctggccatgc 2100
ccaaccggtg ggacatttga gttgcttgct tggcactgtc ctctcatgcg ttgggtccac 2160
tcagtagatg cctgttgaat taagcttatt taaataggcc ggccataact tcgtataatg 2220
tatgctatac gaagttatgg atccagtgga aagacgcgca ggcaaacgc accacgtgac 2280
ggagcgtgac cgcgcgccga gcccaagggtc gggcaggaag agggcctatt tcccatgatt 2340
ccttcataat tgcataatcg atacaaggct gttagagaga taattagaat taatttgact 2400
gtaaacacaa agatattagt acaaaatacg tgacgtagaa agtaataatt tcttggttag 2460
tttgacgttt taaaattatg ttttaaaatg gactatcata tgcttaccgt aacttgaaag 2520
tatttcgatt tcttggttt atatatcttg tggaaaaggac gaaacaccgg gattccaatt 2580
cagcgggagc cacctgatga agcttgatcg ggtggctctc gctgagttgg aatccatttt 2640
tttctagact cgagataact tcgtataatg tatgctatac gaagttatgg cgcgccggta 2700
accgaagttc ctatactttc tagagaatag gaacttcgga ataggaactt cttaggtcaa 2760
ttctaccggg taggggaggc gcttttccca aggcagtctg gagcatgcgc tttagcagcc 2820
ccgctgggca cttggcgcta cacaagtggc ctctggcctc gcacacattc cacatccacc 2880
ggtaggcgcc aaccggtccc gttctttggt ggccccttcg cgccaccttc tactcctccc 2940
ctagtcagga agttccccc cgccccgcag ctgcgctcgt gcaggacgtg acaaatggaa 3000
gtagcacgtc tcactagtct cgtgcagatg gacagcaccc ctgagcaatg gaagcgggta 3060
ggcctttggg gcagcgcca atagcagctt tgctccttcg ctttctgggc tcagaggctg 3120
ggaagggtg ggtccgggg cggtctcagg ggcgggctca gggcgggggc gggcgccga 3180
aggtcctccg gaggccggc attctgcacg cttcaaaagc gcacgtctgc cgcgtgttc 3240
tcctcttctc catctccggg cctttcgacc tgcagccaat atgggatcgg ccattgaaca 3300
agatggattg cacgcaggtt ctccggccgc ttgggtggag aggtatttcg gctatgactg 3360

```

```

ggcacaacag acaatcggct gctctgatgc cgccgtgttc cggctgtcag cgcaggggag 3420
cccggttcct tttgtcaaga ccgacctgtc cgggtgccctg aatgaactgc aggacgaggg 3480
agcgcggcta tcgtggctgg ccacgacggg cgttccttgc gcagctgtgc tcgacgttgt 3540
cactgaagcg ggaagggact ggctgctatt gggcgaaagt ccggggcagg atctcctgtc 3600
atctcacctt gctcctgccg agaaagtatc catcatggct gatgcaatgc ggcggtgca 3660
tacgcttgat ccggctacct gccattcga ccaccaagcg aaacatcgca tcgagcgagc 3720
acgtactcgg atggaagccg gtcttgtcga tcaggatgat ctggacgaag agcatcaggg 3780
gctcgcgcca gccgaactgt tcgccaggct caaggcgcgc atgcccgcgc gcgaggatct 3840
cgctcgtgacc catggcgatg cctgcttgcc gaatatcatg gtggaaaatg gccgcttttc 3900
tggtattcat gactgtggcc ggctgggtgt ggcggaccgc tatcaggaca tagcgttggc 3960
taccctgat attgctgaag agcttggcgg cgaatgggct gaccgcttcc tcgtgcttta 4020
cggtatcgcc gctcccgaat cgcagcgcac cgcttctat cgccttcttg acgagttctt 4080
ctgaggggat cgatccgctg taagtctgca gaaattgat atctattaaa caataaagat 4140
gtccactaaa atggaagttt ttctgtcat actttgttaa gaagggtgag aacagagtac 4200
ctacatcttg aatggaagga ttggagctac gggggtggg gtggggtggg attagataaa 4260
tgctgctct ttactgaagg ctctttacta ttgctttatg ataattgttc atagttagat 4320
atcataattt aaacaagcaa aaccaaatta agggccagct cattcctccc actcatgac 4380
tatagatcta tagatctctc gtgggatcat tgtttttctc ttgattccca ctttgtgggt 4440
ctaagtactg tggtttccaa atgtgtcagt ttcatagcct gaagaacgag atcagcagcc 4500
tctgttccac atacacttca ttctcagtat tgttttgcca agttctaatt ccatcagaag 4560
ctgactctag atcccgcgcc gaagtcccta tactttctag agaataggaa cttcggaata 4620
ggaaettcaa gcttaagcgc 4640

```

<210> 8

<211> 15174

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Targeting
vector for Rosa26 locus with a Rluc-U6-shRNA neo
insert

<400> 8

```

ctagggataa cagggttaata tagccgcggc aggccctccg agcgtgggtg agccgttctg 60
tgagacagcc ggggtacgagt cgtgacgctg gaaggggcaa gcgggtgggtg ggcaggaatg 120
cggtcgcgcc tgcagcaacc ggagggggag ggagaaggga gcggaaaagt ctccaccgga 180
cgcgcccatg gctcgggggg gggggggcag cggaggagcg cttccggccg acgtctcgtc 240
gctgattggc ttcttttccct cccgccgtgt gtgaaaacac aaatggcgtg ttttgggttg 300
cgtaaggcgc ctgtcagtta acggcagccg gagtgcgcag ccgcccggcag cctcgctctg 360
cccactgggt ggggcggggg gtaggtgggg tgaggcgagc tggacgtgcg ggcgcggtcg 420
gcctctggcg gggcggggga ggggagggag ggtcagcgaa agtagctcgc gcgcgagcgg 480
ccgcccaccc tccccttccct ctgggggagt cgttttaccg gccgcccggc gggcctcgtc 540
gtctgattgg ctctcggggc ccagaaaact ggcctttgcc attggctcgt gttcgtgcaa 600
gttgagtcca tccgcgggcc agcggggcgc gcgaggaggc gctcccaggt tccggccctc 660
ccctcggccc cgcgcgcgag agtctggccg cgcgcccctg cgcaacgtgg caggaagcgc 720
gcgctggggg cggggacggg cagtagggct gagcggctgc ggggcgggtg caagcacgtt 780
tccgacttga gttgcctcaa gaggggcgtg ctgagccaga cctccatcgc gcaactcggg 840
gagtggaggg aaggagcgag ggctcagttg ggctgttttg gaggcaggaa gcaactgctc 900
tcccaaagtc gctctgagtt gttatcagta agggagctgc agtgagtag gcggggagaa 960
ggccgcaccc ttctccggag gggggagggg agtggtgcaa tacctttctg ggagttctct 1020
gctgcctcct ggcttctgag gaccgccttg ggctgggag aatcccttcc cctcttccc 1080
tcgtgatctg caactccagt ctttctaggt aaccgatatc cctgcagggg tgacctgcac 1140
gtctaggcgg cagtagtcca gggtttccct gatgatgtca tacttactct gtccttttt 1200
ttccacagc tcgcggttga ggacaaactc ttccggtct ttccagtact cctgcagggtg 1260
actgactgag tcgagatctg cgatctaagt aagcttgcca ttccggtact gttggtaaaag 1320
ccaccatggc ttccaagggt tacgaccccg agcaacgcaa acgcatgac actgggcctc 1380
agtgggtggc tcgctgcaag caaatgaacg tgctggactc cttcatcaac tactatgatt 1440
ccgagaagca cgcgcgagac gccgtgattt ttctgcatgg taacgctgcc tcagctacc 1500
tgtggaggca cgtcgtgcct cacatcgagc ccgtggctag atgcatcatc cctgatctga 1560
tcggaatggg taagtccggc aagagcggga atggctcata tcgcctcctg gatcactaca 1620
agtacctcac cgcttggttc gagctgctga accttccaaa gaaaatcatc tttgtgggccc 1680

```

acgactgggg	ggcttgtctg	gcctttcact	actcctacga	gcaccaagac	aagatcaagg	1740
ccatcgtcca	tgtctgagagt	gtcgtggacg	tgatcgagtc	ctgggacgag	tggcctgaca	1800
tcgaggagga	tatcgccctg	atcaagagcg	aagagggcga	gaaaaatggtg	cttgagaata	1860
acttcttctg	cgagaccatg	ctcccaagca	agatcatgcg	gaaactggag	cctgaggagt	1920
tcgctgccta	cctggagcca	ttcaaggaga	agggcgaggt	tagacggcct	accctctcct	1980
ggcctcgoga	gatccctctc	gttaagggag	gcaagcccga	cgctcgtccag	attgtccgca	2040
actacaacgc	ctaccttcgg	gccagcgacg	atctgcctaa	gatgttcata	gagtccgacc	2100
ctgggttctt	ttccaacgct	attgtcagag	gagctaagaa	gttccttaac	accgagttcg	2160
tgaaggtgaa	gggcctccac	ttcagccagg	aggacgctcc	agatgaaatg	ggtaagtaca	2220
tcaagagctt	cgtggagcgc	gtgctgaaga	acgagcagta	attctagacc	ggttcgagat	2280
ccaggcgcg	atcaataaaa	gatcattatt	ttcaatagat	ctgtgtgttg	gttttttgtg	2340
tgccttgggg	gagggggagg	ccagaatgag	gcgcggccaa	gggggagggg	gaggccagaa	2400
tgaccttggg	ggagggggag	gccagaatga	ccttggggga	gggggagggc	agaatgaggc	2460
gcggatccgt	cgacttaatt	aaggccaggg	atcttcaagc	agacctacag	caagttcgac	2520
acaaactcac	acaacgatga	cgcactactc	aagaactacg	ggctgctcta	ctgcttcagg	2580
aaggacatgg	acaaggtcga	gacattcctg	cgcactcgtc	agtgcgcgtc	tgtggagggc	2640
agctgtgggt	tctagctggc	cggttggcat	ccctgtgacc	cctccccagt	gcctctcctg	2700
gccctggaag	ttgccactcc	agtgcaccac	agccttgtcc	taataaaatt	aagttgcatc	2760
atthttgtctg	actaggtgtc	cttctataat	attatggggg	ggaggggggt	ggtatggagc	2820
aaggggcaag	ttgggaagac	aacctgtagg	gcctgcgggg	tctattggga	accaagctgg	2880
agtgcagtg	cacaatcttg	gctcactgca	atctccgcct	cctgggttca	agcgattctc	2940
ctgectcagc	ctcccagagt	gttgggattc	caggeatgca	tgaccaggct	cagctaattt	3000
ttgttttttt	ggtagagacg	gggtttcacc	atattggcca	ggctgggtctc	caactcctaa	3060
tctcaggtga	tctacccacc	ttggcctccc	aaattgctgg	gattacaggc	gtgaaccact	3120
gctcccttcc	ctgtccttct	gattttaaaa	taactatacc	agcaggagga	cgtccagaca	3180
cagcataggc	cacttggcca	tgcccaaccg	gtgggacatt	tgagttgctt	gcttggcact	3240
gtcctctcat	gcgttgggtc	cactcagtag	atgcctgttg	aattaagctt	atttaaatag	3300
gcgggccata	acttcgtata	atgtatgcta	tacgaagtta	tggatccagt	ggaaagacgc	3360
gcaggcaaaa	cgcaccacgt	gacggagcgt	gaccgcgcgc	cgagcccaag	gtcgggcagg	3420
aagagggcct	atthcccatg	attccttcat	atthgcatat	acgatacaag	gctgttagag	3480
agataaattag	aattaatttg	actgtaaaca	caaagatatt	agtacaaaat	acgtgacgta	3540
gaaagtaata	atthcttggg	tagtttgtag	ttthaaaatt	atgtttttaa	atggactatc	3600
atatgcttac	cgtaacttga	aagtatttcg	atthcttggc	tttatatatc	ttgtggaaaag	3660
gacgaaacac	cgggattcca	attcagcggg	agccacctga	tgaagcttga	tcgggtggct	3720
ctcgtctgagt	tggaaatccat	ttttttctag	actcgagata	acttcgtata	atgtatgcta	3780
tacgaagtta	tggcgcgccg	gtaaccgaag	ttcctatact	ttctagagaa	taggaacttc	3840
ggaataggaa	cttcttaggt	caattctacc	gggttagggg	ggcgcttttc	ccaaggcagt	3900
ctggagcatg	cgcttttagca	gccccgctgg	gcacttggcg	ctacacaagt	ggcctctggc	3960
ctcgcacaca	ttccacatcc	accggtaggc	gccaacgggc	tccgttcttt	ggtggcccct	4020
tcgcgccacc	ttctactcct	cccctagtc	ggaagttccc	ccccgccccg	cagctcgctg	4080
cgtgcaggac	gtgacaaatg	gaagtagcac	gtctcactag	tctcgtgcag	atggacagca	4140
ccgctgagca	atggaagcgg	gtaggccttt	ggggcagcgg	ccaatagcag	ctttgctcct	4200
tcgctttctg	ggctcagagg	ctgggaaggg	gtgggtccgg	gggcgggctc	aggggcgggc	4260
tcaggggcgg	ggcgggcggc	cgaaggtcct	ccggaggccc	ggcattctgc	acgcttcaaa	4320
agcgcacgtc	tgcgcgcgtg	ttctcctctt	cctcatctcc	gggcctttcg	acctgcagcc	4380
aatatgggat	cggccattga	acaagatgga	ttgcacgcag	gttctccggc	cgtctgggtg	4440
gagaggctat	tcggctatga	ctgggcacaa	cagacaaatc	gctgctctga	tgcccgctgt	4500
ttccggctgt	cagcgcaggg	gcgcccgggt	ctttttgtca	agaccgacct	gtccgggtgcc	4560
ctgaatgaac	tgcaggacga	ggcagcgcgg	ctatcgtggc	tggccacgac	gggcgttcct	4620
tgcgcagctg	tgctcgacgt	tgtcactgaa	gcgggaaggg	actggctgct	attgggcgaa	4680
gtgccggggc	aggatctcct	gtcatctcac	cttgctcctg	ccgagaaaag	atccatcatg	4740
gctgatgcaa	tgcggcggct	gcatacgctt	gatccggcta	cctgcccatt	cgaccaccaa	4800
gcgaaacatc	gcacgcagcg	agcacgtact	cgatgggaag	ccggtcttgt	cgatcaggat	4860
gatctggacg	aagagcatca	ggggtctcgc	ccagccgaac	tgcttcgccc	gctcaaggcg	4920
cgcatgcccc	acggcgagga	tctcgtcgtg	acctatggcg	atgcctgctt	gccgaatatc	4980
atggtggaaa	atggcgcgtt	ttctggattc	atcgactgtg	gccggctggg	tgtggcggac	5040
cgctatcagg	acatagcgtt	ggctaccctg	gatattgctg	aagagcttgg	cggcggaatg	5100
gctgaccgct	tcctcgtgct	ttacgggtatc	gccgctcccg	attcgcagcg	catcgccctt	5160
tatcgccctt	ttgacgagtt	cttctgaggg	gatcgatccg	ctgtaagtct	gcagaaattg	5220
atgatctatt	aaacaataaa	gatgtccact	aaaatggaag	tttttctgtg	catactttgt	5280
taagaagggt	gagaacagag	tacctacatt	ttgaatggaa	ggattggagc	tacgggggtg	5340
gggggtgggg	gggattagat	aaatgcctgc	tctttactga	aggctcttta	ctattgcttt	5400
atgataatgt	ttcatagttg	gatatcataa	tttaaacaa	caaaaccaa	ttaagggcc	5460

gctcattcct	cccactcatg	atctatagat	ctatagatct	ctcgtgggat	cattgttttt	5520
ctcttgatcc	ccactttgtg	gttctaagta	ctgtggtttc	caaagtgtgc	agtttcatag	5580
cctgaagaac	gagatcagca	gcctctgttc	cacatacact	tcattctcag	tattgttttg	5640
ccaagttcta	attccatcag	aagctgactc	tagatcccgc	gccgaagttc	ctatactttc	5700
tagagaatag	gaacttcgga	ataggaactt	caagcttaag	cgctagaaga	tgggcgggag	5760
tcttctgggc	aggcttaaag	gctaacctgg	tgtgtgggcg	ttgtcctgca	ggggaattga	5820
acaggtgtaa	aattggaggg	acaagacttc	ccacagattt	tcggttttgt	cgggaagttt	5880
tttaatatagg	gcaaataagg	aaaatgggag	gataggtagt	catctggggg	tttatgcagc	5940
aaaactacag	gttattattg	cttgtgatcc	gcctcggagt	attttccatc	gaggtagatt	6000
aaagacatgc	tcacccgagt	tttatactct	cctgcttgag	atccttacta	cagtatgaaa	6060
ttacagtgtc	gcgagttaga	ctatgtaagc	agaattttaa	tcatttttaa	agagcccagt	6120
acttcatatc	cattttctccc	gctccttctg	cagccttatc	aaaaggtatt	ttagaacact	6180
catttttagcc	ccattttcat	ttattatact	ggcttatcca	acccctagac	agagcatttg	6240
cattttccct	ttcctgatct	tagaagtctg	atgactcatg	aaaccagaca	gattagttag	6300
atacaccaca	aatcgaggct	gtagctgggg	cctcaacact	gcagttcttt	tataactcct	6360
tagtacaact	tttgttgatc	ctttgccttg	atccttaatt	ttcagtgtct	atcacctctc	6420
ccgtcagtgg	tgttccacat	ttgggcctat	tctcagtcca	gggagtttta	caacaataga	6480
tgtattgaga	atccaacctt	aagcttaact	ttccactccc	atgaatgcct	ctctcctttt	6540
tctccattta	taaactgagc	tattaacctt	taatggttcc	aggtggatgt	ctcctcccca	6600
tattacctga	tgtatcttac	atattgccag	gctgatattt	taagacatta	aaaggtatat	6660
ttcattattg	agccacatgg	tattgattac	tgcttactaa	aattttgtca	ttgtacacat	6720
ctgtaaaagg	tggttccttt	tggaaatgcaa	agttcaggtg	tttgttgtct	ttcctgacct	6780
aaggtcttgt	gagcttgtat	tttttctatt	taagcagtgc	tttctcttgg	actggcttga	6840
ctcatggcat	tctacacgtt	attgctggtc	taaagtgtat	tttgccaagc	ttcttcagga	6900
cctataattt	tgcttgactt	gtagccaaac	acaagtaaaa	tgattaagca	acaaatgtat	6960
ttgtgaagct	tggttttttag	gttgttgtgt	tgtgtgtgct	tgtgctctat	aataatacta	7020
tccaggggct	ggagaggtgg	ctcggagttc	aagagcacag	actgctcttc	cagaagtcct	7080
gagttcaatt	cccagcaacc	acatggtggc	tcacaacctt	ctgtaatggg	atctgatgcc	7140
ctcttctggt	gtgtctgaag	accacaagtg	tattcacatt	aaataaataa	atcctccttc	7200
ttcttctttt	tttttttttt	aaagagaata	ctgtctccag	tagaatttac	tgaagtaatg	7260
aaatactttg	tgtttgttcc	aatatggtag	ccaataatca	aattactctt	taagcactgg	7320
aaatgttacc	aaggaactaa	tttttatttg	aagtgttaact	gtggacagag	gagccataac	7380
tgcagacttg	tgggatacag	aagaccaatg	cagactttta	tgtcttttct	cttaccttaa	7440
gcaataaaga	aataaaaaatt	gaacttctag	tatcctattt	gtttaaactg	ctagctttac	7500
ttactttttg	tgcttcatct	atacaaaagt	aaaagctaag	tctgcagcca	ttactaaaca	7560
tgaagcaag	taagtataat	tttgatttcc	gaaaatgtag	ggccagagtt	tagccagcca	7620
gtggtggtgc	ttgccttttat	gcctttaatc	ccagcactct	ggaggcagag	acaggcagat	7680
ctctgagttt	gagcccagcc	tggctctacac	atcaagttct	atctaggata	gccaggaata	7740
cacacagaaa	ccctgttggg	gaggggggct	ctgagatttc	ataaaattat	aattgaagca	7800
ttccctaattg	agccactatg	gatgtggcta	aatccgtcta	cctttctgat	gagatttggtg	7860
tattattttt	tctgtctctg	ctgttggttg	ggtcttttga	cactgtgggc	tttctttaaa	7920
gcctccttcc	tgccatgtgg	tctcttgttt	gctactaact	tcccatggct	taaattggcat	7980
ggcttttttg	cttctaaggg	cagctgctga	gatttgcagc	ctgattttcca	gggtgggggt	8040
gggaaatctt	tcaaactacta	aaattgtcct	ttaatttttt	ttttaaaaaa	tgggttatat	8100
aataaacctc	ataaaatagt	tatgaggagt	gaggtggact	aatatttaaat	gagtcctctc	8160
cctataaaag	agctattaag	gctttttgtc	ttatacttaa	cttttttttt	aaatcgtgta	8220
tctttagaac	caaggggtctt	agagtttttag	tatacagaaa	ctgttgcata	gcttaattcag	8280
attttctagt	ttcaaatcca	gagaatccaa	attcttcaca	gccaaagtca	aattaagaat	8340
ttctgacttt	taatgttaat	ttgcttactg	tgaatataaa	aatgatagct	tttcttgagg	8400
caggggtctca	ctatgtatct	ctgcctgatc	tgcaacaaga	tatgtagact	aaagttctgc	8460
ctgcttttgt	ctcctgaata	ctaaggttaa	aatgtagtaa	tacttttgga	acttgcaggt	8520
cagattcttt	tataggggac	acactaaggg	agcttgggtg	atagttggta	aaatgtgttt	8580
caagtgtatga	aaacttgaat	tattatcacc	gcaacctact	ttttaaaaaa	aaaagccagg	8640
cctgttagag	catgcttaag	ggatccctag	gacttgctga	gcacacaaga	gtagttactt	8700
ggcaggctcc	tgggtgagagc	atatttcaaa	aaacaaggca	gacaaccaag	aaactacagt	8760
taaggttacc	tgtcttttaa	ccatctgcac	atacacaggg	atattaaaat	attccaataa	8820
atatttcatt	caagttttcc	cccatcaaat	tgggacatgg	atttctccgg	tgaataggca	8880
gagttggaaa	ctaaacaaat	gttggttttg	tgatttgtga	aattgttttc	aagtgatagt	8940
taaagcccat	gagatacaga	acaaagctgc	tatttcgagg	tctcttggtt	tatactcaga	9000
agcacttctt	tgggtttccc	tgcactatcc	tgatcatgtg	ctaggcctac	cttaggctga	9060
ttgttggtca	aataaactta	agtttcctgt	caggtgatgt	catatgattt	catatatcaa	9120
ggcaaaacat	gttatatatg	ttaaacattt	gtacttaatg	tgaaagttag	gtctttgtgg	9180
gtttgatttt	taattttcaa	aacctgagct	aaataagtca	tttttacatg	tcttacattt	9240

```

ggtggaattg tataattgtg gtttgcaggc aagactctct gacctagtaa ccctacctat 9300
agagcacttt gctgggtcac aagtctagga gtcaagcatt tcaccttgaa gttgagacgt 9360
tttgtttagtg tatactagtt tatatgttgg aggacatgtt tatccagaag atattcagga 9420
ctatTTTTga ctgggctaag gaattgattc tgattagcac tgtttagtgag cattgagtgg 9480
ccttttaggt tgaattggag tcaattgtat atctcaaata atgctggcct tttttaaaaa 9540
gcccttgttc tttatcacc cgttttctac ataatttttg ttcaaagaaa tacttgtttg 9600
gatctccttt tgacaacaat agcatgtttt caagccatat tttttttcct tttttttttt 9660
ttttttgggt tttcgagaca gggtttctct gtatagccct ggctgtcctg gaactcactt 9720
tgtagaccag gctggcctcg aactcagaaa tccgcctgcc tctgcctcct gagtgccggg 9780
attaaaggcg tgcaccacca cgctggcta agttggatat tttgttatat aactataacc 9840
aataactaact ccaactgggtg gatttttaat tcagtcagta gtcttaagtg gtctttattg 9900
gcccttcatt aaaatctact gttcactcta acagaggctg ttggtactag tggcacttaa 9960
gcaacttctt acggatatac tagcagatta agggtcaggg atagaaacta gtctagcgtt 10020
ttgtatacct accagcttta tactaccttg ttctgataga aatatttcag gacatctagc 10080
acgtgttaac tcgagctgca ggattcgagg gccccggcag gtcaattcta ccgggtaggg 10140
gaggcgcttt tcccaaggca gtctggagca tgcgctttag cagccccgct gggcacttgg 10200
cgctacacaa gtggcctctg gcctcgaca cattccacat ccaccgtag gcgccaaccg 10260
gctccgttct ttggtggccc cttcgcgcca ccttctactc ctcccctagt cagggaagttc 10320
cccccgccc cgcagctcgc gtctgagcag acgtgacaaa tgggaagtagc acgtctcact 10380
agtctcgtgc agatggacag caccgctgag caatggaagc gggtaggcct ttggggcagc 10440
ggccaatagc agctttgtc cttcgctttc tgggctcaga ggctgggaag ggggtgggtcc 10500
ggggggcggg tcagggcgcg gctcagggcg gggggggggc cccgaagggtc ctccggaggc 10560
ccggcattct gcacgcttca aaagcgcacg tctgcgcgcg tgttctcctc ttctctatct 10620
ccgggccttt cgacctgcag ccaatgcacc gtcttgcca tcatggcctc gtaccccggc 10680
catcaacacg cgtctgcgtt cgaccaggct gcgcttctc gcggccatag caaccgacgt 10740
acggcggttg gccctcgccg gcagcaagaa gccacggaag tccgcccga gcagaaaatg 10800
cccacgtac tcgcggttta tatagacggt cccacggga tggggaaaac caccaccacg 10860
caactgctgg tggccctggg ttccgcgcag gatctgtct acgtaccga gccgatgact 10920
tactggcggg tgtggggggc ttccgagaca atcgcgaaca tctacaccac acaacaccgc 10980
ctcgaccagg gtgagatata ggccggggac gcggcggtgg taatgacaag cgcccagata 11040
acaatgggca tgccttatgc cgtgaccgac gccgttctgg ctctcatat cgggggggag 11100
gctgggagct cacatgcccc gccccgggc ctcacctca tcttcgaccg ccatcccatc 11160
gccgccctcc tgtgctaccc ggccgcgcgg taccttatgg gcagcatgac cccccaggcc 11220
gtgctggcgt tcgtggccct catccgcgcg accttgcccg gcaccaacat cgtgcttggg 11280
gcccttccgg aggacagaca catcgaccgc ctggccaaac gccagcgccc cggcgagcgg 11340
ctggacctgg ctatgctggc tgcgattcgc cgcgtttacg ggctacttgc caatacgggtg 11400
cggtatctgc agtgcgccg gtctgtggcg gaggactggg gacagcttcc ggggacggcc 11460
gtgccgcccc agggtgccga gcccagagc ttgctggccc ccaacggcga cctgtataac 11520
acgttattta cctgtttcgg ggccccgag cgtcttggcc aaacgcctcc gttccatgca cgtctttatc 11580
ctggattacg accaatcgcc cgccggctgc cgggacgccc tgctgcaact tacctccggg 11640
atggtccaga cccacgtcac ccccccggc tccataccga cgatatgca cctggcgccg 11700
acgtttgccc gggagatggg ggaggctaac tgaggggatc gatccgtcct gtaagtctgc 11760
agaaattgat gatctattaa acaataaaga tgtccactaa aatggaagtt tttcctgtca 11820
tactttgtta agaagggtga gaacagagta cctacatttt gaatggaagg attggagcta 11880
cgggggtggg ggtggggtgg gattagataa atgcctgtct tttactgaag gctctttact 11940
attgctttat gataatgttt catagtgtga tatcataatt taaacaagca aaaccaaatt 12000
aagggccagc tcattcctcc cactcatgat ctatagatct atagatctct cgtgggatca 12060
ttgtttttct cttgattccc actttgtggt tctaagtact gtggtttcca aatgtgtcag 12120
ttcatagacc tgaagaacga gatcagcagc ctctgttcca catacacttc attctcagta 12180
ttgttttgcc aagttctaata tccatcagaa gctgactcta ggccgagctc caattcgccc 12240
tatagttagt cgtattacaa ttcactggcc gtcgttttac aacgtcgtga ctgggaaac 12300
cctggcgcta cccaacttaa tcgccttgca gcacatcccc ctttcgccag ctggcgtaat 12360
agcgaagagg cccgcaccga tcgccttccc caacagttgc gcagcctgaa tggcgaatgg 12420
gacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc 12480
gctacacttg ccagcgccct agcgcccgct cctttcgctt tottcccttc ctttctcgcc 12540
acgttcgccc gctttccccg tcaagctcta aatcgggggc tocttttagg gttccgattt 12600
agtgtttac ggacctcga ccccaaaaaa cttgattagg gtgatgggtc acgtagtggg 12660
ccatcgccct gatagacggt ttttcgcctt ttgacgttgg agtccacgtt ctttaatagt 12720
ggactcttgt tccaaactgg aacaacactc aacctatct cggctctatc ttttgattta 12780
taagggattt tgccgatttc ggctatttgg ttaaaaaatg agctgattta acaaaaattt 12840
aacgcgaatt ttaacaaaat attaacgctt acaatttagg tggcactttt cggggaaatg 12900
tgcgcggaac ccctatttgg ttatttttct aaatacatte aaatatgtat ccgctcatga 13020

```

```

gacaataacc ctgataaatg cttcaataat attgaaaaag gaagagtatg agtattcaac 13080
atttcctgtt cgcccttatt cccttttttg cggcattttg ccttcctgtt tttgctcacc 13140
cagaaacgct ggtgaaagta aaagatgctg aagatcagtt ggggtgcacga gtgggttaca 13200
tcgaactgga tctcaacagc ggtaagatcc ttgagagttt tcgccccgaa gaacgttttc 13260
caatgatgag cactttttaa gttctgctat gtggcgcggt attatcccgt attgacgccg 13320
ggcaagagca actcggctgc cgcatacact attctcagaa tgacttggtt gaatactcac 13380
cagtcacaga aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca 13440
taaccatgag tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg 13500
agctaaccgc ttttttgcac aacatggggg atcatgtaac tcgccttgat cgttggggaa 13560
cggagctgaa tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg 13620
caacaacgct gcgcaaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat 13680
taatagactg gatggaggcg gataaagttg caggaccact tctgcgctcg gcccttccgg 13740
ctggctgggt tattgctgat aaatctggag cgggtgagcg tgggtctcgc ggtatcattg 13800
cagcactggg gccagatggg aagccctccc gtatcgtagt tatctacacg acggggagtc 13860
aggcaactat ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc 13920
attggttaact gtcagaccaa gtttactcat atatacttta gattgattta aaacttcatt 13980
tttaatttaa aaggatctag gtgaagatcc tttttgataa tctcatgacc aaaatccctt 14040
aacgtgagtt ttggttcac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt 14100
gagatccttt ttttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag 14160
cgggtggtttg tttgccggat caagagctac caactctttt tccgaaggta actggcttca 14220
gcagagcgca gataccaaat actgtccttc tagtgtagcc gtagttaggc caccacttca 14280
agaactctgt agcaecgcct acatacctcg ctctgctaata cctgttacca gtggctgctg 14340
ccagtggcga taagtctgtt cttaccgggt tggactcaag acgatagtta ccgataagg 14400
cgcagcggtc gggctgaacg ggggggttcgt gcacacagcc cagcttgagc cgaacgacct 14460
acaccgaact gagataccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 14520
gaaaggcgga caggtatccg gtaagcggca ggtcggaaac aggagagcgc acgagggagc 14580
ttccaggggg aaacgcctgg tatctttata gtctgtcgg gtttcgccac ctctgacttg 14640
agcgtcgatt tttgtgatgc tcgtcagggg ggccgagcct atggaaaaac gccagcaacg 14700
cggccttttt acggttctctg gccttttgct ggcccttttg tcacatgttc tttcctgcgt 14760
tatcccttga ttctgtggat aaccgtatta ccgcctttga gtgagctgat accgctcgcc 14820
gcagccgaac gaccgagcgc agcagtcag tgagcgagga agcggaagag cgcccaatac 14880
gcaaacccgc tctccccgcg cgttggccga ttcattaatg cagctggcac gacaggtttc 14940
ccgactggaa agcgggcagt gagcgcaacg caattaatgt gagttagctc actcattagg 15000
caccocaggc tttacacttt atgcttccgg ctcgatgtt gtgtggaatt gtgagcggat 15060
aacaatttca cacaggaaac agctatgacc atgattacgc caagcgcgca attaaccctc 15120
actaaagggg acaaaagctg tcgagatcta gatatcgat gccatagagt tacg 15174

```

```

<210> 9
<211> 4641
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: Rluc tet01
insert

```

```

<400> 9
tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgag tagtccaggg 60
tttcttgat gatgtcatac ttatcctgtc cttttttttt ccacagctcg cggttgagga 120
caaactcttc gcggtctttc cagtactcct gcaggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtagctgt ggtaaagcca ccatggcttc caagggtgtac 240
gaccccgagc aacgcaaacg catgatcact gggcctcagt ggtgggctcg ctgcaagcaa 300
atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
gtgatttttc tgcatggtaa cgctgcctcc agctacctgt ggaggcacgt cgtgcctcac 420
atcgagcccg tggctagatg catcatccct gatctgatcg gaatgggtaa gtccggcaag 480
agcgggaatg gctcatatcg cctcctggat cactacaagt acctaccgc ttggttcgag 540
ctgctgaacc tccaaagaa aatcatcttt gtgggccacg actggggggc ttgtctggcc 600
tttctactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
gtggacgtga tcgagtcctg ggacgagtgg cctgacatcg aggaggatat cgccctgatc 720
aagagcgaag agggcgagaa aatgggtgctt gagaataact tcttcgtoga gaccatgctc 780
ccaagcaaga tcatgcggaa actggagcct gaggagtctg ctgcctacct ggagccattc 840
aaggagaagg gcgaggtagt acggcctacc ctctcctggc ctgcgcgagat ccctctcgtt 900

```

```

aagggaggca agcccgacgt cgtccagatt gtccgcaact acaacgccta ccttcggggcc 960
agcgacgacg tgocctaagat gttcatcgag tccgaccctg gggtcttttc caacgctatt 1020
gtcgagggag ctaagaagtt ccctaaccac gagttcgtga aggtgaaggg cctccacttc 1080
agccaggagg acgctccaga tgaaatgggt aagtacatca agagcttcgt ggagcgcggtg 1140
ctgaagaacg agcagtaatt ctagaccggt tcgagatcca ggcgcggatc aataaaagat 1200
cattattttc aatagatctg tgtgttggtt ttttgtgtgc cttgggggag ggggaggcca 1260
gaatgaggcg cggccaaggg ggagggggag gccagaatga ccttggggga gggggaggcc 1320
agaatgacct tgggggaggg ggaggccaga atgaggcgcg gatccgtcga ctttaattaag 1380
gccagggatc ttcaagcaga cctacagcaa gttcgacaca aactcacaca acgatgacgc 1440
actactcaag aactacgggc tgctctactg cttcaggaag gacatggaca aggtcgagac 1500
attcctgcgc atcgtgcagt gccgctctgt ggagggcagc tgtggcttct agctgcccgg 1560
gtggcatccc tgtgacccct cccagtgcc tctcctggcc ctggaagttg ccactccagt 1620
gcccaccagc cttgtcctaa taaaattaag ttgcatcatt ttgtctgact aggtgtcctt 1680
ctataatatt atggggtgga ggggggtggt atggagcaag gggcaagttg ggaagacaac 1740
ctgtaggggc tgccgggtct attgggaacc aagctggagt gcagtggcac aatcttggtc 1800
cactgaatc tccgcctcct gggttcaagc gattctcctg cctcagcctc ccgagttggt 1860
gggattccag ccatgcatga ccaggtctcag ctaatttttg tttttttggt agagacgggg 1920
tttcaccata ttggccaggc tggctctcaa ctccataatc caggtgatct acccaccttg 1980
gcctcccaaa ttgctgggat tacaggcggt aaccactgct cccttccttg tcttctgat 2040
tttaaaataa ctataccagc aggaggacgt ccagacacag cataggctac ctggccatgc 2100
ccaaccgggt ggacatttga gttgcttgct tggcactgtc ctctcatgcg ttgggtccac 2160
tcagtagatg cctgttgaat taagcttatt taatataggec ggccataact tcgtataatg 2220
tatgtctatac gaagttatgg atccagtggg aagacgcgca ggcaaaacgc accacgtgac 2280
ggagcgtgac cgcgcgccga gcccaaggtc gggcaggaag agggcctatt tcccatgatt 2340
ccttcataatt tgcataatag atacaaggct gttagagaga taattagaat taatttgact 2400
gtaaacacaa agatattagt acaaaatacg tgacgtagaa agtaataatt tcttgggtag 2460
tttgcatgtt taaaattatg ttttaaaatg gactatcata tgcttaccgt aacttgaaag 2520
tactctatca ttgatagagt tatatatctt gtggaaggga cgaaacaccg ggattccaat 2580
tcagcgggag ccacctgatg aagcttgatc ggggtggctct cgctgagttg gaatccattt 2640
ttttctagac tcgagataac ttctgtataat gtatgctata cgaagttatg gcgcgccggg 2700
aaccgaagtt cctatacttt ctagagaata ggaacttcgg aataggaact tcttaggtca 2760
attctaccgg gtaggggagg cgcttttccc aaggcagttc ggagcatgcg ctttagcagc 2820
cccgtggggc acttggcgct acacaagtgg cctctggcct cgcacacatt ccacatccac 2880
cggtagggcg caaccggctc cgttcttttg tggcccttc gcgccacct ctactcctcc 2940
cctagtccag aagttccccc ccgccccgca gctcgcgtcg tgcaggacgt gacaaatgga 3000
agtagcacgt ctcatagtc tcgtgcagat ggacagcacc gctgagcaat ggaagcgggt 3060
aggcctttgg ggcagcgccc aatagcagct ttgctcctc gctttctggg ctacagagct 3120
gggaaggggt gggtccgggg gcgggctcag gggcgggctc aggggcgggg cgggcgcccc 3180
aaggtcctcc ggaggcccg cattctgcac gcttcaaaag cgcacgtctg ccgcgctgtt 3240
ctcctcttcc tcatctccgg gcctttcgac ctgcagccaa tatgggatcg gccattgaac 3300
aagatggatt gcacgcaggt tctccggccg cttgggtgga gaggctattc ggctatgact 3360
gggcacaaca gacaatcggc tgctctgatg ccgctgtgtt ccggctgtca gcgcagggg 3420
gcccggttct ttttgtcaag accgacctgt ccggtgcctt gaatgaactg caggacgagg 3480
cagcgcggtc atcgtggctg gccacgacgg gcgttcttgc cgcagctgtg ctgcagcttg 3540
tcaactgaagc gggaagggac tggctgctat tgggcgaagt gccggggcag gatctcctgt 3600
catctcacct tgctcctgcc gagaaagtat ccatcatggc tgatgcaatg cggcggtctg 3660
atacgtttga tccgctacc tgcccattcg accaccaagc gaaacatcgc atcgagcgag 3720
cacgtactcg gatggaagcc ggtcttgcg atcaggatga tctggacgaa gagcatcagg 3780
ggctcgcgcc agccgaactg ttccgccaggc tcaaggcgcg catgcccagc ggcgaggatc 3840
tcgtcgtgac ccattggcgat gcctgcttgc cgaatatcat ggtggaaaat ggccgctttt 3900
ctggattcat cgactgtggc cggctgggtg tggcggaccg ctatcaggac atagcgttg 3960
ctaccogtga tattgtgaa gagcttggcg gcgaatgggc tgaccgcttc ctcggtcttt 4020
acggtatcgc cgctcccgat tcgcagcgca tcgccttcta tcgccttctt gacgagttct 4080
tctgagggga tcgatccgct gtaagtctgc agaaattgat gatctattaa acaataaaga 4140
tgtccactaa aatggaagtt tttcctgtca tactttgtta agaagggtga gaacagagta 4200
cctacatttt gaattggaag attggagcta cgggggtggg ggtgggggtg gattagataa 4260
actcctgtc tttactgaag gctctttact attgctttat gataatgttt catagtggga 4320
tatcataatt taaacaagca aaaccaaatt aagggccagc tcattcctcc cactcatgat 4380
ctatagatct atagatctct cgtgggatca ttgtttttct cttgattccc actttgtggt 4440
tctaagtact gtggtttcca aatgtgtcag tttcatagcc tgaagaacga gatcagcagc 4500
ctctgttcca catacacttc attctcagta ttgttttgcc aagttctaatt tccatcagaa 4560
gctgactcta gatccgcgc cgaagttcct atactttcta gagaatagga acttcggaat 4620
aggaacttca agcttaagcg c 4641

```


<210> 10
 <211> 4640
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rluc tet02
 insert

<400> 10

```
tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgag tagtccaggg 60
tttccttgat gatgtcatac ttatcctgtc cctttttttt ccacagctcg cggttgagga 120
caaactcttc gcggtctttc cagtactcct gcaggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtagctgt ggtaaagcca ccatggcttc caaggtgtac 240
gaccccgagc aacgcaaacg catgatcact gggcctcagt ggtgggctcg ctgcaagcaa 300
atgaacgtgc tggactcctt catcaactac tatgattccg agaagcacgc cgagaacgcc 360
gtgatttttc tgcattgtaa cgctgcctcc agctacctgt ggaggcacgt cgtgcctcac 420
atcgagcccg tggctagatg catcatccct gatctgatcg gaatgggtaa gtccggcaag 480
agcgggaatg gctcatatcg cctcctggat cactacaagt acctcaccgc ttggttcgag 540
etgctgaacc ttccaaagaa aatcatcttt gtgggccacg actggggggc ttgtctggcc 600
tttactact cctacgagca ccaagacaag atcaaggcca tcgtccatgc tgagagtgtc 660
gtggacgtga tcgagtcctg ggacgagtg cctgacatcg aggaggatat cgccctgac 720
aagagcgaag agggcgagaa aatggtgctt gagaataact tcttcgtcga gaccatgctc 780
ccaagcaaga tcatgcgga actggagcct cctcctggc ctgcgcgagat ccctctcggt 840
aaggagaagg gcgaggttag acggcctacc ctctcctggc ctgcgcgagat ccctctcggt 900
aaggagagga agcccagcgt cgtccagatt gtccgcaact acaacgccta ccttcggggc 960
agcgacgatc tgctaagat gttcatcgag tccgaccctg ggttcttttc caacgctatt 1020
gtcgagggag ctaagaagtt ccctaaccac gagttcgtga aggtgaaggg cctccacttc 1080
agccaggagg acgctccaga tgaaatgggt aagtagatca agagcttcgt ggagcgcggt 1140
ctgaagaacg agcagtaatt ctagaccggt tcgagatcca ggcgcggatc aataaaagat 1200
cattattttc aatagatctg tgtgttggt ttttgtgtgc cttgggggag ggggaggcca 1260
gaatgaggcg cgccaaggg ggagggggag gccagaatga ccttggggga gggggaggcc 1320
agaatgacct tgggggaggg ggaggccaga atgaggcgcg gatccgtcga cttaattaag 1380
gccagggatc ttcaagcaga cctacagcaa gtctcactg cttcaggaag gacatggaca aggtcgagac 1500
actactcaag aactacggc tgctcactg cttcaggaag gacatggaca aggtcgagac 1560
attcctgcgc atcgtgcagt gccgctctgt ggagggcagc tgtggcttct agctgcccg 1620
gtggcatccc tgtgacctt cccagtgcc tctcctggc ctggaagttg ccactccagt 1680
gcccaccagc cttgtcctaa taaaattaag ttgcatcatt ttgtctgact aggtgtcctt 1740
ctataatatt atgggggtga ggggggtggt atggagcaag gggcaagttg ggaagacaac 1800
ctgtagggcc tgcgggtct attgggaacc aagctggagt gcagtggcac aatccttggt 1860
cactgcaatc tccgcctcct gggttcaagc gatttctctg cctcagcctc ccgagttgtt 1920
gggattccag gcatgcatga ccaggctcag ctaatttttg ttttttttgt agagacgggg 1980
tttcaccata ttggccaggc tggctcctaa ctctaattc caggtgatct accaccttg 2040
gcctcccaaa ttgtctggat tacaggcggt aaccactgct ccttccctg tctctctgat 2100
tttaaaataa ctataccagc aggaggacgt ccagacacag cataggctac ctggccatgc 2160
ccaaccggtg ggacatttga gttgcttctg tggcactgtc ctctcatgag ttgggtccac 2220
tcagtagatg cctgttgaat taagcttatt taaataggcc ggccataact tcgtataatg 2280
tatgctatac gaagttatg atccagtga aagacgcgca ggcaaacgc accacgtgac 2340
ggagcgtgac cgcgcgccga gcccaaggte gggcaggaag agggcctatt tcccatgatt 2400
ccttcatatt tgcataatc atacaaggct gttagagaga taattagaat taatttgact 2460
gtaaacacaa agatattagt acaaaatacg tgacgtagaa agtaataatt tcttgggtag 2520
tttgagttt taaaattatg ttttaaaatg gactatcata tgcttaccgt aacttgaaag 2580
tatttcgatt tcttggcttt atatatctcc ctatcagtga tagagaaagg gattccaatt 2640
cagcgggagc cacctgatga agcttgatcg ggtggctctc gctgagttgg aatccatttt 2700
tttctagact cgagataact tcgtataatg tatgctatac gaagttatgg cgcgcgggta 2760
accgaagttc ctatactttc tagagaatag gaacttcgga ataggaactt cttaggtcaa 2820
ttctaccggg taggggaggc gcttttccca aggcagtcct gagcatgcgc tttagcagcc 2880
ccgctgggca cttggcgcta cacaagtggc ctctggcctc gcacacattc cacatccacc 2940
ggtaggcgcc aaccggctcc gttcttttgt ggccctctcg cgccaccttc tactcctccc 3000
ctagtcagga agttccccc cgccccgcag ctgcgctcgt gcaggacgtg acaaatggaa 3060
gtagcacgtc tcaactagtct cgtgcagatg gacagcaccg ctgagcaatg gaagcgggta
```

```

ggcctttggg gcagcggcca atagcagctt tgctccttcg ctttctgggc tcagaggctg 3120
ggaaggggtg ggtccggggg cgggctcagg ggcgggctca ggggcggggc gggcgcccga 3180
aggctcctcg gagggccggc attctgcacg cttcaaaagc gcacgtctgc cgcgtgttc 3240
tcctcttctt catctccggg cctttcgacc tgcagccaat atgggatcgg ccattgaaca 3300
agatggattg cacgcaggtt ctccggccgc ttgggtggag aggctattcg gctatgactg 3360
ggcacaaacag acaatcggct gctctgatgc cgccgtgttc cggctgtcag cgcaggggag 3420
cccgttctt tttgtcaaga ccgacctgtc cgggtgccctg aatgaactgc aggacgaggc 3480
agcgcgggta tcgtggctgg ccacgacggg cgttccttgc gcagctgtgc tcgacgttgt 3540
cactgaagcg ggaagggact ggctgctatt gggcgaagtg ccggggcagg atctcctgtc 3600
atctcacctt gctcctgccc agaaagtatc catcatggct gatgcaatgc ggcggtgca 3660
tacgcttgat ccggctacct gccattcgca ccaccaagcg aaacatcgca tcgagcgagc 3720
acgtactcgg atggaagccg gtcttgtcga tcaggatgat ctggacgaag agcatcaggg 3780
gctcgcgcca gccgaactgt tcgccaggct caaggcgcgc atgcccgacg gcgaggatct 3840
cgtcgtgacc catggcgatg cctgcttgcc gaatatcatg gtggaaaatg gccgcttttc 3900
tggattcatc gactgtggcc ggctgggtgt ggcgaccgc tatcaggaca tagcgttggc 3960
taccogtgat attgctgaag agcttggcgg cgaatgggct gaccgcttcc tcgtgcttta 4020
cggtatcgcc gctcccgatt cgcagcgcat cgccttctat cgccttcttg acgagttctt 4080
ctgaggggat cgatccgctg taagtctgca gaaattgatg atctattaaa caataaagat 4140
gtccactaaa atggaagttt ttctgtcat actttgttaa gaagggtgag aacagagtac 4200
ctacattttg aatggaagga ttggagctac gggggtggg gtggggtggg attagataaa 4260
tgctgtctct ttactgaagg ctctttacta ttgctttatg ataattgttc atagtggat 4320
atcataattt aaacaagaaa aacaaaatta agggccagct cattcctccc actcatgac 4380
tatagatcta tagatctctc gtgggatcat tgtttttctc ttgattccca ctttgtgggt 4440
ctaagtactg tggtttccaa atgtgtcagt ttcatagcct gaagaacgag atcagcagcc 4500
tctgttccac atacacttca ttctcagtat tgttttgcca agttctaatt ccatacagaag 4560
ctgactctag atcccgcgcc gaagttccta tactttctag agaataggaa cttcggaata 4620
ggaacttcaa gcttaagcgc

```

<210> 11

<211> 3387

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: H1 tet5' shRNA
vector

<400> 11

```

agctcgatat cggccggcca taacttcgta taatgtatgc tatacgaagt tatggatcct 60
cacagtaggt ggcacgttgc ctttctgact gcccgcccc cgcattgccg cccgcgatat 120
tgagctccga acctctcgcc ctgccgccc cgggtgctccg tcgccgccc gccgccatgg 180
aattcgaacg ctgacgtcat caaccgcctc caaggaatcg cgggcccagt gtcactaggc 240
gggaacaccc agcgcgcgtg cgccctggca ggaagatggc tgtgagggac aggggagtgg 300
cgccctgcaa tatttgcatt tcgctatgtg ttctgggaaa tcaccataaa cgtgaaattc 360
cctatcagtg atagagatta taagttctgt atgagaccac tctttccag gatccaatt 420
cagcgggagc cactgatga agcttgatcg ggtggctctc gctgagttgg aatccatttt 480
tttctaggat aacttcgtat aatgtatgct atacgaagtt atggcgcgcc ggtaccagc 540
ttttgttccc tttagtggg gttaatttcg agcttggcgt aatcatggtc atagctgttt 600
cctgtgtgaa attgttatcc gtcacaatt ccacacaaca tacgagccgg aagcataaag 660
tgtaaagcct ggggtgccta atgagtgagc taactcacat taattgcgtt gcgctcactg 720
cccgtttcc agtcgggaaa cctgtcgtgc cagctgcatt aatgaatcgg ccaacgcgcg 780
gggagaggcg gtttgcgat tgggcgctct tccgcttctt cgtcactga ctcgctgcgc 840
tcggtcgttc ggctgcggcg agcggatca gctcactcaa aggcggtaat acggttatcc 900
acagaatcag gggataacgc aggaagaac atgtgagcaa aaggccagca aaaggccagg 960
aaccgtaaaa aggcgcgctt gctggcggtt ttccatagge tccgcccccc tgacagcat 1020
cacaaaaatc gacgtcaag tcagaggtgg cgaaaccgca caggactata aagataccag 1080
gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga 1140
tacctgtccg cctttctccc ttccgggaagc gtggcgcttt ctcatagctc acgctgtagg 1200
tatctcagtt cgggtgtagt cgttcgctcc aagctgggct gtgtgcacga acccccgtt 1260
cagcccgacc gctgcgcctt atccggtaac tatcgtcttg agtccaaccc ggtaagacac 1320
gacttatcgc cactggcagc agccactggg aacaggatta gcagagcgag gtatgtaggc 1380
ggtgctacag agttcttgaa gtgggtggcct aactacggct acactagaag gacagtattt 1440

```

```

ggtatctgcg ctctgctgaa gccagttacc ttcggaaaaa gagttggtag ctcttgatcc 1500
ggcaaacaaa ccaccgctgg tagcgggtgg ttttttgttt gcaagcagca gattacgcgc 1560
agaaaaaaag gatctcaaga agatcctttg atcttttcta cggggtctga cgctcagtg 1620
aacgaaaact cacgttaagg gattttggtc atgagattat caaaaaggat cttcacctag 1680
atccttttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaaacttg 1740
tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 1800
tcatccatag ttgcctgact ccccgctcgt tagataacta cgatacggga gggcttacca 1860
tctggcccca gtgctgcaat gataccgcga gaccacgct caccggctcc agatttatca 1920
gcaataaacc agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc 1980
tccatccagt ctattaattg ttgccgggaa gctagagtaa gtagttcgcc agttaatagt 2040
ttgcgcaacg ttgttgccat tgctacaggc atcgtgggtg cacgctcgtc gtttggtatg 2100
gcttcattca gctccggttc ccaacgatca aggcgagtta catgatcccc catgttgtgc 2160
aaaaaagcgg ttagctcctt cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg 2220
ttatcactca tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga 2280
tgcttttctg tgactgggta gtactcaacc aagtcattct gagaatagtg tatgcggcga 2340
ccgagttgct cttgcccggc gtcaatacgg gataatacgg cgccacatag cagaacttta 2400
aaagtgtca tcattgaaa acgttcttcg gggcgaaaac tctcaaggat cttaccgctg 2460
ttgagatcca gttcgatgta acccactcgt gcacccaact gatcttcagc atcttttact 2520
ttcaccagcg tttctgggtg agcaaaaaa ggaaggcaaa atgccgcaa aaagggaata 2580
agggcgacac ggaaatgttg aatactcata ctcttccttt ttcaatatta ttgaagcatt 2640
tatcagggtt attgtctcat gagcggatac atatttgaat gtatttagaa aaataaaca 2700
ataggggttc egcgcacatt tccccgaaaa gtgccaccta aattgtaagc gtttatatt 2760
tgtaaaaatt cgcgttaaat ttttgtaaaa tcagctcatt ttttaacca taggccgaaa 2820
tcggcaaaat cccttataaa tcaaaagaat agaccgagat aggggtgagt gttgttccag 2880
tttggaaaca gagtcacta ttaaagaacg tggactccaa cgtcaaagg cgaaaaaccg 2940
tctatcaggg cgatggccca ctacgtgaac catcaccta atcaagtttt ttgggggtcga 3000
ggtgccgtaa agcactaaat cggaacccta aaggagagcc ccgatttaga gcttgacggg 3060
gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc gaaaggagcg ggcgctaggg 3120
cgctggcaag tgtagcggtc acgctgcgcg taaccaccac acccgccgcg cttaatgcgc 3180
cgctacaggg cgcgtcccat tcgccattca ggctgcgcaa ctgttgggaa gggcgatcgg 3240
tgcgggcctc ttcgctatta cgccagctgg cgaaaggggg atgtgctgca aggcgattaa 3300
gttgggtaac gccagggttt tcccagtcac gacgttgtaa aacgacggcc agtgaattgt 3360
aatacgactc actatagggc gaattgg 3387

```

<210> 12

<211> 3387

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: H1 tet3' shRNA
vector

<400> 12

```

agctcgatat cggccggcca taacttcgta taatgtatgc tatacgaagt tatggatcct 60
cacagtaggt ggcacgttcc ttttctgact gccgcggccc cgcagtcgct cccgcgatat 120
tgagctccga acctctcgcc ctgcgcggcg cgggtgctcg tcgcgcgcgc gccgccatgg 180
aattcgaacg ctgacgtcat caaccgctc caaggaatcg cgggcccagt gtcactaggc 240
gggaacaccc agcgcgcgtg cgccctggca ggaagatggc tgtgagggac aggggagtg 300
cgccctgcaa tatttgcatg tcgctatgtg ttctgggaaa tcaccataaa cgtgaaatgt 360
ctttggattt gggaaatctta taagtcacct tcagtgatag agattcccag gattccaatt 420
cagcgggagc cacctgatga agcttgatcg ggtggctctc gctgagttgg aatccatttt 480
tttctagat aacttcgtat aatgtatgct atacgaagtt atggcgcgcc ggtaccagc 540
ttttgttccc tttagttagg gttaatctcg agcttggcgt aatcatggtc atagctgttt 600
cctgtgtgaa attgttatcc gtcacaatt ccacacaaca tacgagccgg aagcataaag 660
tgtaaagcct ggggtgcta atgagtgagc taactcacat taattgcgtt gcgctcactg 720
cccgttttcc agtcgggaaa cctgtcgtgc cagctgcatt aatgaatcgg ccaacgcgcg 780
gggagaggcg gtttgcgat tgggcgctct tccgttccct cgctcactga ctgcgtgcgc 840
tcggtcgttc ggctgcggcg agcggtatca gctcactcaa aggcggtaat acggttatcc 900
acagaatcag gggataacgc aggaagaac atgtgagcaa aaggccagca aaaggccagg 960
aaccgtaaaa aggcgcggtt gctggcggtt ttccataggc tccgcccccc tgacgagcat 1020
cacaaaaatc gacgctcaag tcagagggtg cgaaaccgca caggactata aagataaccag 1080

```

```

gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttacccga 1140
tacctgtccg cctttctccc ttccgggaagc gtggcgcttt ctcatagctc acgctgtagg 1200
tatctcagtt cggtgtagggt cgttcgctcc aagctgggct gtgtgcacga acccccgtt 1260
cagcccgacc gctgcgcctt atccggtaac tatcgtcttg agtccaaccc ggtaagacac 1320
gacttatcgc cactggcagc agccactggt aacaggatta gcagagcgag gtatgtaggc 1380
ggtgctacag agttcttgaa gtgggtggct aactacggct aactagaag gacagtattt 1440
ggtatctgcg ctctgctgaa gccagttacc ttccgaaaaa gagttggtag ctcttgatcc 1500
ggcaaacaaa ccaccgctgg tagcgggtgg ttttttgttt gcaagcagca gattacgcgc 1560
agaaaaaaag gatctcaaga agatcctttg atcttttcta cggggtctga cgctcagtg 1620
aacgaaaact cacgttaagg gattttgggt atgagattat caaaaaggat cttcacctag 1680
atccttttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaaacttg 1740
tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 1800
tcatccatag ttgcctgact ccccgctcgt tagataacta cgatacggga gggcttacca 1860
tctggcccca gtgctgcaat gataccgcga gaccacgct caccggctcc agatttatca 1920
gcaataaaac agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc 1980
tccatccagt ctattaattg ttgccgggaa gctagagtaa gtagttcgcc agttaatagt 2040
ttgcgcaacg ttgttgccat tgctacaggc atcgtggtgt cacgctcgtc gtttggtatg 2100
gcttcattca gctccggttc ccaacgatca aggcgagtta catgatcccc catgttgtgc 2160
aaaaaagcgg ttagctcctt cggctcctcg atcgttgtca gaagtaagtt ggccgcagtg 2220
ttatcactca tgggtatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga 2280
tgcttttctg tgactgggtga gtactcaacc aagtcattct gagaatagtg tatgcggcga 2340
ccgagttgct cttgcgcggg gtcaatacgg gataatacgg cgccacatag cagaacttta 2400
aaagtgtca tcattgaaa acgttcttcg ggcgaaaaac tctcaaggat cttaccgctg 2460
ttgagatcca gttcgatgta acccactcgt gcaccaact gatcttcagc atcttttact 2520
ttcaccagcg tttctgggtg agcaaaaaa ggaaggcaaa atgccgcaaa aaagggaata 2580
agggcgacac ggaaatgttg aataactcata ctcttccttt ttcaatatta ttgaagcatt 2640
tatcagggtt attgtctcat gagcggatca atatttgaat gtatttagaa aaataaaca 2700
ataggggttc cgcgcacatt tccccgaaaa gtgccaccta aattgtaagc gttaatattt 2760
tgttaaaatt cgcgttaaat ttttgttaaa tcagctcatt ttttaacca taggccgaaa 2820
tcggcaaaat cccttataaa tcaaaagaat agaccgagat aggggttgag gttgttccag 2880
tttggaacaa gagtccacta ttaaagaacg tggactccaa cgtcaaaggg cgaaaaaccg 2940
tctatcaggg cgatggccca ctacgtgaac catcacccca atcaagtttt ttggggtcga 3000
ggtgccgtaa agcactaaat cggaacccta aagggaagcc ccgatttaga gcttgacggg 3060
gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc gaaaggagcg ggcgctaggg 3120
cgctggcaag tgtagcgctc acgctgcgcg taaccaccac acccgccgcg cttatgcgc 3180
cgctacaggg cgcgtcccat tcgccattca ggctgcgcaa ctggtgggaa gggcgatcgg 3240
tgccggcctc ttcgctatta cgccagctgg cgaaaggggg atgtgctgca aggcgattaa 3300
gttggttaac gccagggttt tcccagtcac gacgttgtaa aacgacggcc agtgaattgt 3360
aatacgactc actatagggc gaattgg 3387

```

<210> 13

<211> 3387

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: H1 tet5' + 3'
shRNA vector

<400> 13

```

agctcgatat cggccggcca taacttcgta taatgtatgc tatacgaagt tatggatcct 60
cacagtaggt ggcacgttct ctttctgact gccgcgcgc cgcatgccgt cccgcgatat 120
tgagctccga acctctgcc ctgccgcgc cggtgtccg tcgccgcgc gccgccatgg 180
aattcgaacg ctgacgtcat caaccgctc caaggaaatc cgggccagtg gtcactaggc 240
gggaacaccc agcgcgcgtg cgccctggca ggaagatggc tgtgagggac aggggagtg 300
cgccctgcaa tatttgcatg tcgctatgtg ttctgggaaa tcaccataaa cgtgaaattc 360
cctatcagtg atagagatta taagtcccta tcagtgatag agattcccag gattccaatt 420
cagcgggagc cacctgatga agcttgatcg ggtggctctc gctgagttgg aatccatttt 480
tttctaggat aacttcgtat aatgtatgct atacgaagtt atggcgcgcc ggtaccagc 540
ttttgttccc tttagttagg gttaatttcg agcttggcgt aatcatggtc atagctgttt 600
cctgtgtgaa attgttatcc gtcacaatt ccacacaaca tacgagccgg aagcataaag 660
tgtaaaagcct ggggtgccta atgagtgagc taactcacat taattgcgtt gcgctcactg 720

```

```

cccgcctttcc agtcgggaaa cctgtcgtgc cagctgcatt aatgaatcgg ccaacgcgcg 780
gggagaggcg gtttgcgtat tgggcgtctt tccgcttcct cgctcactga ctcgctgcgc 840
tcggtcgttc ggctgcggcg agcggatatca gctcactcaa aggcggtaat acggttatcc 900
acagaatcag gggataacgc aggaaagaac atgtgagcaa aaggccagca aaaggccagg 960
aaccgtaaaa aggcgcggtt gctggcggtt ttccataggc tccgcccccc tgacgagcat 1020
cacaaaaatc gacgctcaag tcagaggtgg cgaaacccga caggactata aagataccag 1080
gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga 1140
tacctgtccg cctttctccc ttcgggaagc gtggcgcttt ctcatagctc acgctgtagg 1200
tatctcagtt cgggtgtagg cgttcgctcc aagctgggct gtgtgcacga acccccctt 1260
cagcccgacc gctgcgcctt atccggtaac tatcgtcttg agtccaaccc ggtaagacac 1320
gaacttatcg cactggcagc agccactggt aacaggatta gcagagcgag gtatgtaggc 1380
ggtgctacag agttcttgaa gtgggtggct aactacggct acactagaag gacagtattt 1440
ggtatctgcg ctctgctgaa gccagttacc ttcggaaaaa gagttggtag ctcttgatcc 1500
ggcaaacaaa ccacgcgtgg tagcgggtgg ttttttgttt gcaagcagca gattacgcgc 1560
agaaaaaaag gatctcaaga agatcctttg atcttttcta cggggtctga cgtcagtggt 1620
aacgaaaact cacgttaagg gatttttggtc atgagattat caaaaaggat cttcacctag 1680
atccttttaa attaaaaatg aagtttttaa tcaatctaaa gtatatatga gtaaaacttg 1740
tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 1800
tcattccatag ttgcctgact ccccgctcgt tagataacta cgatacggga gggcttacca 1860
tctggcccca gtgctgcaat gataccgcga gaccacgct caccggctcc agatttatca 1920
gcaataaacc agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc 1980
tccatccagt ctattaattg ttgccgggaa gctagagtaa gtatgtcgcg agtttaagt 2040
ttgcgcaacg ttgttgccat tgctacaggc atcgtggtgt cacgctcgtc gtttggtatg 2100
gcttcattca gctccggttc ccaacgatca aggcgagtta catgatcccc catgttgtgc 2160
aaaaaagcgg ttagctcctt cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg 2220
ttatcactca tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga 2280
tgcttttctg tgactggtga gtactcaacc aagtcattct gagaatagtg tatgcggcga 2340
ccgagttgct cttgcccggc gtcaatacgg acgttcttcg gggcgaaaaa tctcaaggat cttaccgctg 2400
aaagtgtctc tcattggaaa acgttcttcg gggcgaaaaa tctcaaggat cttaccgctg 2460
ttgagatcca gttcgtatga acccactcgt gcacccaact gatcttcagc atcttttact 2520
ttcaccagcg tttctgggtg agcaaaaaa ggaaggcaaa atgccgcaaa aaagggaata 2580
agggcgacac ggaaatgttg aatactcata ctcttccttt ttcaatatta ttgaagcatt 2640
tatcagggtt attgtctcat gagcggatac atatttgaat gtatttagaa aaataaaca 2700
ataggggttc cgcgcacatt tccccgaaaa gtgccaccta aattgtaagc gttaatattt 2760
tgttaaaatt cgcgttaaat ttttgtaaaa tcagctcatt ttttaacca taggccgaaa 2820
tcggcaaaat cccttataaa tcaaaagaat agaccgagat aggggttgagt gttgttccag 2880
tttgaacaa gagtccacta ttaagaacg tggactccaa cgtcaaaggg cgaaaaaccg 2940
tctatcaggg cgatggccca ctacgtgaac catcaccta atcaagtttt ttggggctga 3000
ggtgccgtaa agcactaaat cggaacccta aaggagccc ccgatttaga gcttgacggg 3060
gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc gaaaggagcg ggcgctaggg 3120
cgctggcaag ttagcgggtc acgctgcgcg taaccaccac acccgccgcg cttaatgcgc 3180
cgctacaggg cgcgtcccat tcgccattca ggctgcgcaa ctggtgggaa gggcgatcgg 3240
tgccggcctc ttcgtatta cgccagctgg cgaaaggggg atgtgctgca aggcgattaa 3300
ggtgggtaac gccagggtt tcccagtcac gacgttgtaa aacgacggcc agtgaattgt 3360
aatacgactc actatagggc gaattgg 3387

```

<210> 14

<211> 7209

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

Fluc-GAGGS-tetR-hygro insert

<400> 14

```

tctaggtaac cgatatccct gcaggggtga cctgcacgtc tagggcgag tagtccaggg 60
tttccttgat gatgtcatac ttatcctgtc cctttttttt ccacagctcg cggttgagga 120
caaaactcttc gcggtctttc cagtactcct gcaggtgact gactgagtcg agatctgcga 180
tctaagtaag cttggcattc cggtaactgtt ggtaaagcca ccatggaaga cgcaaaaaac 240
ataaagaaaag gcccggcgcc attctatccg ctggaagatg gaaccgctgg agagcaactg 300
cataaggcta tgaagagata cgccctggtt cctggaacaa ttgcttttac agatgcacat 360

```

atcgaggtgg	acatcactta	cgctgagtag	ttcgaaatgt	ccgttcggtt	ggcagaagct	420
atgaaacgat	atgggctgaa	tacaaatcac	agaatcgctg	tatgcagtga	aaactctctt	480
caattcttta	tgccggtgtt	gggcgcgtta	tttatcgag	ttgcagtgc	gcccgcgaac	540
gacatttata	atgaacgtga	attgctcaac	agtatgggca	tttcgcagcc	taccgtggtg	600
ttcgtttcca	aaaaggggtt	gcaaaaaatt	ttgaacgtgc	aaaaaaagct	cccaatcatc	660
caaaaaatta	ttatcatgga	ttctaaaacg	gattaccagg	gatttcagtc	gatgtacacg	720
ttcgtcacat	ctcatctacc	tcccggtttt	aatgaatacg	attttgtgcc	agagtccctc	780
gatagggaca	agacaattgc	actgatcatg	aactcctctg	gatctactgg	tctgcctaaa	840
ggtgtcgctc	tgccctcatag	aactgcctgc	gtgagattct	cgcatgccag	agatcctatt	900
tttggaatc	aaatcattcc	ggatactgcg	attttaagt	ttgttcatt	ccatcacggt	960
tttggaatgt	ttactacact	cgatattttg	atatgtggat	ttcgagtcgt	cttaattgat	1020
agatttgaag	aagagctgtt	tctgaggagc	cttcaggatt	acaagattca	aagtgcgctg	1080
ctggtgccaa	ccctattctc	cttcttcgcc	aaaagcactc	tgattgacaa	atacgattta	1140
tctaatttac	acgaaattgc	ttctgggtgg	gtccccctct	ctaaggaagt	cggggaagcg	1200
gttgccaaga	ggttccatct	gccaggatct	aggcaaggat	atgggctcac	tgagactaca	1260
tcagctattc	tgattacacc	cgagggggat	gataaaccgg	gcgcggtcgg	taaagttggt	1320
ccattttttg	aagcgaaggt	tgtggatctg	gataccggga	aaacgctggg	cgtaatacaa	1380
agagggcaac	tgtgtgtgag	aggtcctatg	attatgtccg	gttatgtaaa	caatccggaa	1440
gcgaccaacg	ccttgattga	caaggatgga	tggctacatt	ctggagacat	agcttactgg	1500
gacgaagacg	aacacttctt	catcgttgac	cgctgaagt	ctctgattaa	gtacaaaggc	1560
tatcaggtgg	ctcccgctga	attggaatcc	atcttgctcc	aacaccccaa	catcttcgac	1620
gcaggtctcg	caggtctctc	cgacgatgac	gccggtgaac	ttcccgccgc	cgttgttgtt	1680
ttggagcacg	gaaagacgat	gacggaaaaa	gagatcggtg	attacgtcgc	cagtcaagta	1740
acaaccgcga	aaaagttgcg	cgagggaggt	gtgtttgtgg	acgaagtacc	gaaaggtctt	1800
accggaaaac	tcgacgcaag	aaaaatcaga	gagatcctca	taaaggccaa	gaaggggcga	1860
aagatcgccg	tgtaattcta	gaccggttcg	agatccaggc	gcggatcaat	aaaagatcat	1920
tattttcaat	agatctgtgt	gttggttttt	tgtgtgcctt	gggggagggg	gaggccagaa	1980
tgaggcgcg	ccaaggggga	gggggagggc	agaattgacct	tgggggaggg	ggaggccaga	2040
atgaccttgg	gggaggggga	ggccagaatg	aggcgcgccc	ccgatccgtc	gacggccggg	2100
ctagcttgca	tgccctgcagg	ttttcgacat	tgattattga	ctagttatta	atagtaataca	2160
attacggggg	cattagttca	tagcccatat	atggagttcc	gcgttacata	acttacggta	2220
aatggcccg	ctggctgacc	gcccacgac	ccccgccc	tgacgtcaat	aatgacgtat	2280
gttcccatag	taacgccaat	agggactttc	cattgacgtc	aatgggtgga	ctatttacgg	2340
taaactgccc	acttggcagt	acatcaagt	tatcatatgc	caagtacgcc	ccctattgac	2400
gtcaatgacg	gtaaatggcc	cgctggcat	tatgccaggt	acatgacctt	atgggacttt	2460
cctacttggc	agtacatcta	cgtattagtc	atcgctatta	ccatgggtcg	aggtgagccc	2520
cacgttctgc	ttcactctcc	ccatctcccc	ccccctccca	cccccaattt	tgtatttatt	2580
tattttttta	ttattttgtg	cagcgatggg	ggcggggggg	ggggggggcg	gcgccaggcg	2640
gggcggggcg	gggcgagggg	cggggcgggg	cgaggcgagg	aggtgcggcg	gcagccaatc	2700
agagcgggcg	gctccgaaa	tttcttttta	tggcgaggcg	gcggcgggcg	cgccctata	2760
aaaagcgaag	gcgcggcg	gcgggagtcg	ctgcgttgcc	ttcgccccgt	gccccgctcc	2820
gcgccgcctc	gcgccgccc	ccccggtct	gactgaccgc	gttactccca	caggtgagcg	2880
ggcgggacgg	cccttctcct	ccgggctgta	attagcgctt	ggtttaatga	cggtcgtttt	2940
cttttctgtg	gctgcgtgaa	agccttaaa	ggctccggga	gggccctttg	tgcggggggg	3000
agcggtctcg	ggggtgcgtg	cgtgtgtgtg	tgcgtgggga	gcgcgcgctg	cgggccgcgc	3060
tgcccggcg	ctgtgagcgc	tgccggcgcg	gcgcggggct	ttgtgcgctc	cgcggtgtgc	3120
cgaggggagc	gcggccgggg	gcggtgcccc	gcggtgcggg	ggggtgcga	ggggaacaaa	3180
ggctgcgtgc	ggggtgtgtg	cgtggggggg	tgagcagggg	gtgtggggcg	ggcggtcggg	3240
ctgtaacccc	cccctgcacc	cccctcccc	agttgctgag	cacggccccg	cttcgggtgc	3300
ggggctccgt	gcggggcggt	gcgcggggct	cgccgtgcgc	ggcggggggt	ggcggcaggt	3360
gggggtgcgc	ggcgggcg	ggcgccctcg	ggcgggggag	ggctcggggg	aggggcgcgc	3420
cgcccccgga	gcgcggcg	ctgtcgaggc	gcggcgagcc	gcagccattg	ccttttatgg	3480
taatcgtagc	agagggcgca	gggacttctt	ttgtcccaaa	tctggcgagg	ccgaaatctg	3540
ggagggcgcc	ccgcaccccc	tctagcgggc	gcgggcgaag	cggtgcggcg	ccggcaggaa	3600
ggaaatgggc	ggggagggcc	ttcgtgcgtc	gcgcgcgcgc	cgtccccctt	tccatctcca	3660
gcctcggggc	tgccgcaggg	ggacggctgc	cttcgggggg	gacggggcag	ggcggggttc	3720
ggcttctggc	gtgtgaccgg	cggtcttaga	agcgttgggg	tgagtactcc	ctctcaaaa	3780
cgggcatgac	ttctgcgcta	agattgtcag	tttccaaaa	cgaggaggat	ttgatattca	3840
cctggcccg	ggtgattgct	ttgaggtgg	ccgcgtccat	ctggtcagaa	aagacaatct	3900
ttttgtgtc	aagcttgagg	tgtggcaggc	ttgagatctg	gccatacact	tgagtgcacat	3960
tgacatccac	tttgcccttc	tctccacagg	tgtccactcc	cagggcgggc	tccggagcga	4020
tcgccgatcc	gcctagcatt	caaccatggc	tagattagat	aaaagtaaag	tgattaacag	4080
cgcattagag	ctgcttaagt	aggtcggaat	cgaaggttta	acaaccgta	aactcgccca	4140

```

gaagctaggt gtagagcagc ctacattgta ttggcatgta aaaaataagc gggctttgct 4200
cgacgcctta gccattgaga tgtagatag gcaccatact cacttttgcc ctttagaagg 4260
ggaaagctgg caagattttt tacgtaataa cgctaaaagt ttagatgtg ctttactaag 4320
tcatcgcgat ggagcaaaaag tacatttagg tacacggcct acagaaaaac agtatgaaac 4380
tctcgaaaat caattagcct ttttatgcc acaaggtttt tctactagaga atgcattata 4440
tgcactcagc gctgtggggc attttacttt aggttgcgta ttggaagatc aagagcatca 4500
agtcgctaaa gaagaaaggg aaacacctac tactgatag atgccgccat tattaogaca 4560
agctatcgaa ttatttgatc accaagggtc agagccagcc ttcttattcg gccttgaatt 4620
gatcatatgc ggattagaaa aacaacttaa atgtgaaagt gggtcgtaac cggttcgaga 4680
tccaggcgcg gatcaataaa agatcattat tttcaataga tctgtgtgtt ggttttttgt 4740
gtgccttggg ggagggggag gccagaatga ggcgcggcca agggggaggg ggaggccaga 4800
atgaccttgg gggaggggga ggccagaatg accttggggg agggggaggc cagaatgagg 4860
cgcgcccccg ggtaccgagc tccaattgtt aattaaggcc atagcggccg ccctgaggcc 4920
gcgggcgatc gcctaggggt aaccgaagt cctatacttt ctagagaata ggaacttcgg 4980
aataggaact tcttataatc tagaagatct ggatccacga ttcgagggcc cctgcaggct 5040
aattctaccg ggtaggggag gcgcttttcc caaggcagtc tggagcatgc gctttagcag 5100
ccccgctggc acttggcgct acacaagtgg cctctggcct cgcacacatt ccacatccac 5160
cggtagcgcc aaccggctcc gttctttggt ggccccttcg cgccaccttc tactcctccc 5220
ctagtccagg agttcccccc cgcccccgag ctccgcgtcg gcaggacgtg acaaattgga 5280
gtagcacgtc tcaactagtct cgtgcagatg gacagcaccg ctgagcaatg gaagcgggta 5340
ggcctttggg gcagcggcca atagcagctt tgctccttcg ctttctgggc tcagaggctg 5400
ggaaaggggt ggtccggggg cgggctcagg ggccgggctc ggggagggag gggcgggag 5460
gtcctcccga ggcccgcat tctcgacgc ttcaaaagcg cacgtctgcc gcgctgttct 5520
cctcttctc atctccgggc ctttcgacga tccagccgcc accatgaaaa agcctgaact 5580
caccgcgacg tctgtcgaga agtttctgat cgaaaagttc gacagcgtct ccgacctgat 5640
gcagctctcg gagggcgaa gaaatctctg tttcagcttc gatgtaggag ggcgtggata 5700
tgtctcgcg gtaaatagct gcgccgatgg ttctacaaa agtcttgac attggggaat tcagcgagag 5820
ctttgcatcg gccgcgctcc cgattccgga ggtgtcacg ttgcaagacc tgctgaaac 5880
cctgacctat tgcattctcc gccgtgcaca aggtgtcacg gatgccatcg ctgcggccga 5940
cgaactgccc gctgttctgc agccggtcgc ggaggccatg gatgccatcg ctgcggccga 5940
tcttagccag acgagcgggt tcggccatt cggaccgcaa ggaatcggtc aatacactac 6000
atggcgtgat ttcattatgc cgattgctga tccccatgtg tatcactggc aaactgtgat 6060
ggacgacacc gtcagtgcgt ccgtcgcgca ggctctcgat gagctgatgc tttgggccga 6120
ggactgcccc gaagtccggc acctcgtgca cgcggaattc ggctccaaca atgtcctgac 6180
ggacaatggc cgcataacag cggtcattga ctggagcgag gcgatgttcg gggattccca 6240
atagcagggt gccaacatct tcttctggag gccgtggttg gcttgtatgg agcagcagac 6300
gcgctacttc gagcggaggc atccggagct tgacggatcg ccgcggctcc ggcgtatat 6360
gctccgcatt ggtcttgacc aactctatca gagcttggtt gacggcaatt tcgatgatgc 6420
agcttgggcy cagggtcgat gcgacgcaat cgtccgatcc ggagccggga ctgtcgggcy 6480
tacacaaatc gccgcagaa gcgcggcgt ctggaccgat ggctgtgtag aagtactcgc 6540
cgatagtgg aaccgacgcc ccagcactcg tccgagggca aaggaatagt cgatgcagaa 6600
attgatgatc tattaacaa taaagatgtc cactaaaatg gaagttttcc ctgtcatact 6660
ttgttaagaa gggtgagaac agagtaccta cattttgaat ggaaggattg gagctacggg 6720
gggtgggggt ggggtgggatt agataaatgc ctgctcttta ctgaaggctc tttactattg 6780
ctttatgata atgtttcata gttggatata ataatttaa caagcaaac caaattaagg 6840
gccagctcat tcttcccact catgatctat agatctatag atctctcgtg ggcattattg 6900
ttttctcttg attcccactt tgtggttcta agtactgtgg ttccacata cacttcattc tcagtattgt 7020
atagcctgaa gaacgagatc agcagcctct gttccacata cacttcattc tcagtattgt 7080
tttgccaagt tctaattcca tcagaagctg actctagatc ctgcaggaat tcatatgaag 7140
ttcctatact ttctagagaa taggaacttc ggaataggaa cttcaaatg tcgcggcgcy 7200
ccggtaaccc aagttctat actttctaga gaataggaa ttcggaatag gaacttcaag 7209
cttaagcgc

```

<210> 15

<211> 7014

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: GAGGS-Fluc

<400> 15

tagccccgggc	tagcttgcat	gcctgcaggt	tttcgacatt	gattattgac	tagttattaa	60
tagtaatcaa	ttacgggggtc	attagttcat	agcccatata	tggagttccg	cgttacataa	120
cttacggttaa	atggccccgcc	tggctgaccg	cccaacgacc	cccgccatt	gacgtcaata	180
atgacgtatg	ttcccatagt	aacgccaata	gggactttcc	attgacgtca	atgggtggac	240
tattttacggt	aaactgcccc	cttggcagta	catcaagtgt	atcatatgcc	aagtacgccc	300
cctattgacg	tcaatgacgg	taaatggccc	gcctggcatt	atgcccagta	catgacctta	360
tgggactttc	ctacttggca	gtacatctac	gtattagtca	tcgctattac	catgggtcga	420
ggtgagcccc	acgttctgct	tcactctccc	catctcccc	ccctccccac	ccccaathtt	480
gtattttatt	athttttaat	tattttgtgc	agcgtgggg	gcgggggggg	ggggggcgcg	540
cgccaggcgg	ggcggggcgg	ggcgaggggc	ggggcggggc	gaggcggaga	ggtgcgggcg	600
cagccaatca	gagcggcgcg	ctccgaaagt	ttccttttat	ggcgaggcgg	cgcgggcggc	660
ggccctataa	aaagcgaagc	gcgcggcggg	cgggagtcgc	tgcggtgcct	tcgccccgtg	720
cccgctccg	cgccgcctcg	cgccgcccgc	cccggctctg	actgaccgcg	ttactcccac	780
aggtgagcgg	gcgggacggc	ccttctcctc	cgggctgtaa	ttagcgcttg	gtttaatgac	840
ggctcgtttc	ttttctgtgg	ctgcgtgaaa	gccttaaagg	gctccgggag	ggccctttgt	900
gcggggggga	gcggctcggg	gggtgcgtgc	gtgtgtgtgt	gcgtggggag	cgccgcgtgc	960
ggcccgcgct	gcccggcggc	tgtgagcgct	gcgggcgcg	cgcggggctt	tgtgcgctcc	1020
gcgtgtgcgc	gaggggagcg	cgccgggggg	cggtgccccg	cggtgcgggg	gggctgcgag	1080
gggaacaaa	gctgcgtgcg	gggtgtgtgc	gtgggggggt	gagcaggggg	tgtgggcgcg	1140
gcggtcgggc	tgtaaccccc	ccctgcaccc	ccctccccga	gttgctgagc	acggccccgc	1200
ttcggtgtcg	gggtcctgtg	cggggcgtgg	cgcggggctc	gccgtgcccg	gcgggggggtg	1260
gcggcaggtg	gggtgcggcg	gggggcgggg	gccgcctcgg	gccggggagg	gctcggggga	1320
ggggcgcgcg	ggccccggag	cgccggcggc	tgtcgaggcg	cgcgagcgcc	cagccattgc	1380
cttttatggt	aatcgtgcga	gagggcgcg	ggacttcctt	tgtcccaaat	ctggcgggagc	1440
cgaaatctgg	gaggcgccgc	cgcacccccct	ctagcggggc	cgggcgaagc	ggtgcggcgc	1500
cggcaggaag	gaaatggcg	gggagggcct	tcgtgcgtcg	ccgcgcgcgc	gtccccctct	1560
ccatctccag	cctcggggct	gccgcagggg	gacggctgcc	ttcggggggg	acggggcgagg	1620
gcgggggttcg	gcttctggcg	tgtgaccggc	ggctctagaa	gcgttggggt	gagtactccc	1680
tctcaaaagc	gggcatgact	tctgcgctaa	gattgtcagt	ttccaaaaac	gaggaggatt	1740
tgatattcac	ctggcccgcg	gtgatgcctt	tgaggggtggc	cgcgctccatc	tggtcagaaa	1800
agacaatctt	tttgttgtca	agcttgaggt	gtggcaggct	tgagatctgg	ccatacactt	1860
gagtgcatt	gacatccact	ttgcctttct	ctccacaggt	gtccactccc	agggcggcct	1920
ccggagcgat	cgccgggtccg	cctaggcaat	tgtttaaact	cgaggatctg	cgatctaagt	1980
aagcttgga	ttccgggtact	gttggtaaa	ccaccatgga	agacgcaaaa	aacataaaga	2040
aaggcccggc	gccattctat	ccgctggaag	atggaaccgc	tggagagcaa	ctgcataagg	2100
ctatgaagag	atacgccctg	gttccctgaa	caattgcttt	tacagatgca	catatcgagg	2160
tggacatcac	ttacgctgag	tacttcgaaa	tgtccggttcg	gttggcagaa	gctatgaaac	2220
gatatgggct	gaatacaaat	cacagaatcg	tcgtatgcag	tgaaaactct	cttcaattct	2280
ttatgccggt	gttgggcgcg	ttatttatcg	gagttgcagt	tgcgcccgcg	aacgacattt	2340
ataatgaac	tgaattgctc	aacagtatgg	gcatttcgca	gcctaccgtg	gtgttcgttt	2400
ccaaaaagg	gttgcaaaaa	athtttgaacg	tgcaaaaaaa	gctcccaatc	atccaaaaaa	2460
ttattatcat	ggattctaaa	acggattacc	agggatttca	gtcgatgtac	acgttcgtca	2520
catctcatct	acctcccggg	tttaatgaat	acgattttgt	gccagagtcc	ttcgataggg	2580
acaagacaat	tgcactgac	atgaactcct	ctggatctac	tggctctgct	aaaggtgtcg	2640
ctctgcctca	tagaactgcc	tgcgtgagat	tctcgcatgc	cagagatcct	athtttggca	2700
atcaaatcat	tccggatact	gcgattttaa	gtgttgttcc	attccatcac	ggttttggaa	2760
tgtttactac	actcggatat	ttgatattgt	gatttcgagt	cgtcttaatg	tatagatttg	2820
aagaagagct	gtttctgagg	agccttcagg	attacaagat	tcaaagtgcg	ctgctggtgc	2880
caaccctatt	ctccttcttc	gcaaaaagca	ctctgattga	caaatacgat	ttatctaatt	2940
tacacgaaat	tgccttctgg	ggcgctcccc	tctctaagga	agtcggggaa	gcgggttgcca	3000
agaggttcca	tctgccaggt	atcaggcaag	gatattgggt	cactgagact	acatcagcta	3060
ttctgattac	acccgagggg	gatgataaac	cgggcgcggt	cggtaaaagt	gttccatttt	3120
ttgaagcgaa	ggttgtggat	ctggataccg	ggaaaacgct	gggcgttaat	caaagaggcg	3180
aactgtgtgt	gagaggtcct	atgattatgt	ccggttatgt	aaacaatccg	gaagcgacca	3240
acgccttgat	tgacaaggat	ggatggctac	attctggaga	catagcttac	tgggacgaag	3300
acgaacactt	cttcatcggt	gaccgcctga	agtcctctgat	taagtacaaa	ggctatcagg	3360
tggctccccg	tgaattggaa	tccatcttgc	tccaacaccc	caacatcttc	gacgcagggtg	3420
tcgcagggtct	tcccgcagat	gacgccgggtg	aacttcccgc	cgccgttggt	gttttgaggc	3480
acggaaagac	gatgacggaa	aaagagatcg	tggattacgt	cgccagtcaa	gtaacaaccg	3540
cgaaaaaggt	gcgcggagga	gttgtgtttg	tggacgaagt	accgaaaggt	cttaccggaa	3600
aactcgacgc	aagaaaaatc	agagagatcc	tcataaaggc	caagaagggc	ggaaagatcg	3660
ccgtgttaatt	ctagagtcgg	ggcgcccggc	cgcttcgagc	agacatgata	agatacattg	3720
atgagtttgg	acaaaccaca	actagaatgc	agtgaaaaaa	atgctttatt	tgtgaaattt	3780


```

gtgatgctat tgctttatatt gtaaccatta taagctgcaa taaacaagtt aacaacaaca 3840
attgcattca ttttatgttt cagggttcagg gggaggtgtg ggaggttttt taaagcaagt 3900
aaaacctcta caaatgtggt aaaatcgata aggatctgaa cgatggagcg gagaatgggc 3960
ggaactgggc ggagttaggg gcgggatggg cggagttagg ggcgggacta tggttgctga 4020
ctaattgaga tgcattgctt gcatacttct gcctgctggg gagcctgggg actttccaca 4080
cctggttgct gactaattga gatgcatgct ttgcatactt ctgcctgctg gggagcctgg 4140
ggactttcca caccctaact gacacacatt ccacagcgga tccgtcgacc gatgcccttg 4200
agagccttca acccagtcag ctccctccgg tgggcgcggg gcatgactat cgtcgccgca 4260
cttatgactg tcttctttat catgcaactc gtaggacagg tgccggcagc gctcttcgcg 4320
ttcctcgctc actgactcgc tgcgctcggg cgcttcggctg cggcgagcgg tatcagctca 4380
ctcaaaggcg gtaatacggg tatccacaga atcaggggat aacgcaggaa agaacatgtg 4440
agcaaaaaggc cagcaaaaagg ccaggaaccg taaaaaggcc gcgttgctgg cgtttttcca 4500
taggctccgc cccctgacg agcatcacia aaatcgacgc tcaagtcaaa ggtggcgaaa 4560
cccagacagga ctataaagat accaggcgtt tccccctgga agctccctcg tgcgctctcc 4620
tggtccgacc ctgccgctta ccggatacct gtccgccttt ctcccttcgg gaagcgtggc 4680
gctttctcat agctcacgct gtaggtatct cagttcgggt taggtcgttc gctccaagct 4740
gggctgtgtg cacgaacccc ccgttcagcc cgaccgctgc gccttatccg gtaactatcg 4800
tcttgagtcg aaccocggtaa gacacgactt atcgccactg gcagcagcca ctggtaacag 4860
gattagcaga gcgaggtatg taggcgggtg tacagagttc ttgaagtggg ggcctaacta 4920
cggctacact agaagaacag tatttggtat ctgcgctctg ctgaagccag ttaccttcgg 4980
aaaaagagtt ggtagctctt gatccggcaa acaaaccacc gctggtagcg gtggtttttt 5040
tggttgcaag cagcagatta cgcgcagaaa aaaggatct caagaagatc ctttgatctt 5100
ttctacgggg tctgacgctc agtggaacga aaactcacgt taagggattt tggatcatgag 5160
attatcaaaa aggatcttca cctagatcct tttaaattaa aaatgaagtt ttaaatacaat 5220
ctaaagtata tatgagtaaa cttggtctga cagttaccaaa tgcttaataca gtgagggcacc 5280
tatctcagcg atctgtctat ttcgctcatc catagttgcc tgactccccg tctgttagat 5340
aactacgata cgggaggggt taccatctgg cccagtgct gcaatgatac cgcgagaccc 5400
acgctcaccg gctccagatt tatcagcaat aaaccagcca gccggaaggg ccgagcgcgag 5460
aagtggctct gcaactttat ccgcctccat ccagctctatt aattgttgcc gggaagctag 5520
agtaagttag tcgccagtta atagtttgcg caacgttggt gccattgcta caggcatcgt 5580
ggtgtcacgc tgcgctttg gtatggcttc attcagctcc ggttcccaac gatcaaggcg 5640
agttacatga tccccatgt tgtgcaaaaa agcgggttagc tccttcgggtc ctccgatcgt 5700
tgtcagaagt aagttggcgg cagtgttatc actcatggtt atggcagcac tgcataattc 5760
tcttactgtc atgccatccg taagatgctt ttctgtgact ggtgagtact caaccaagtc 5820
attctgagaa tagtgtatgc ggcgaccgag ttgctcttgc ccggcgtcaa tacgggataa 5880
taccgcgcca catagcagaa ctttaaaagt gctcatcatt ggaaaacggt cttcggggcg 5940
aaactctca aggatcttac cgctgttgag atccagttcg atgtaaccca ctctgtcacc 6000
caactgatct tcagcatctt ttactttcac cagcgtttct ggggtgagcaa aaacaggaag 6060
gcaaaaatgcc gcaaaaaagg gaataaggcg gacacggaaa tgttgaaatac tcatactctt 6120
cctttttcaa tattattgaa gcatttatca gggttattgt ctcatgagcg gatacatatt 6180
tgaatgtatt tagaaaaata aacaaatagg ggttccgcgc acatttcccc gaaaagtgcc 6240
acctgacgcg ccctgtagcg gcgcattaag cgcggcgggg gtggtgggta cgcgcagcgt 6300
gaccgctaca cttgccagcg ccctagcgcc cgctcccttc gctttcttcc cttcctttct 6360
cgccacgttc gccggtttc ccctgcaagc tctaaatcgg gggctccctt tagggttccg 6420
atthagtgct ttacggcacc tcgaccccaa aaaacttgat taggggtgat gttcacgtag 6480
tgggccatcg ccctgataga cgttttttcg ccttttgacg ttggagtcca cgttctttta 6540
tagtggaactc ttgttccaaa ctggaacaac actcaaccct atctcggtct attcttttga 6600
tttataaggg attttgccga tttcggccta ttggttaaaa aatgagctga ttttaaaaaa 6660
atttaacgcg aattttaaca aaatattaac gcttacaatt tgccattcgc cattcaggct 6720
gcgcaactgt tgggaaggcg gatcggtgcg ggctcttcg ctattacgcc agcccaagct 6780
accatgataa gtaagtaata ttaaggtagc ggaggtactt ggagcgccg caataaaaata 6840
tctttatctt cattacatct gtgtgttggt tttttgtgtg aatcgatagt actaacatac 6900
gctctccatc aaaacaaaac gaaacaaaac aaactagcaa aataggctgt cccagtgca 6960
agtgcagggt ccagaacatt tctctatcga taggtaccga gctcttacgc gtgc 7014

```

<210> 16

<211> 5430

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: GAGGS-tetR

<400> 16

```

ccgggctagc ttgcatgcct gcagggttttc gacattgatt attgactagt tattaatagt 60
aatcaattac ggggtcatta gttcatagcc catatatgga gttccgcgtt acataactta 120
cggtaaattgg cccgcctggc tgaccgcccc acgacccccg cccattgacg tcaataatga 180
cgtatgttcc catagtaacg ccaataggga ctttccattg acgtcaatgg gtggactatt 240
tacggtaaac tgcccacttg gcagtacatc aagtgtatca tatgccaagt acgcccccta 300
ttgacgtcaa tgacggtaaa tggcccgctt ggcattatgc ccagtacatg accttatggg 360
actttcctac ttggcagtac atctacgtat tagtcatcgc tattaccatg ggtcgagggtg 420
agccccacgt tctgcttcac tctccccatc tccccccctt cccaccccc aattttgtat 480
ttattttatt tttaattatt ttgtgcagcg atggggggcg gggggggggg ggcgcgcgcc 540
aggcggggcg gggcggggcg aggggcgggg cggggcgagg cggagagggt cggcggcgagc 600
caatcagagc ggcgcgctcc gaaagttttc ttttatggcg aggcggcggc ggcgggcgcc 660
ctataaaaag cgaagcgcgc ggcgggcggg agtcgctgcg ttgccttcgc cccgtgcccc 720
gctccgcgcc gcctcgcgcc gcccgcgccg gctctgactg accgcgttac tcccacaggt 780
gagcggggcg gacggccctt ctccctcggg ctgtaattag cgcttggttt aatgacggct 840
cgtttctttt ctgtggctgc gtgaaagcct taaagggctc cgggagggcc ctttgtgcg 900
gggggagcgg ctcggggggt gcgtgcgtgt gtgtgtgcgt ggggagcgcc gcgtgcggcc 960
cgcgctgccc ggcgctgtg agcgctgcgg gcgcggcgcg gggctttgtg cgctccgcgt 1020
gtgcgcgagg ggagcgcggc cggggcggtt gccccgcggt gcgggggggc tgcgagggga 1080
acaaaggctg cgtgcggggt gtgtgcgtgg gggggtgagc agggggtgtg ggcgcgcgcg 1140
tgggctgtta cccccccctt gcaacccccct ccccgagttg ctgagcacgg cccggttctg 1200
ggtgcggggc tccgtgcggg gcgtggcgcg gggctcgccg tgccggggcg ggggtggcg 1260
cagggtgggg tgccggggcg ggcggggccg cctcgggccg gggagggctc gggggagggg 1320
cgcgggcgcc ccgagcgcc ggcggtgtc gaggcgcggc gagccgcagc cattgcctt 1380
tatggtaatc gtgcgagagg gcgcagggac ttcctttgtc ccaaactctg cggagccgaa 1440
atctgggagg cgcgcgccca cccctctag cggcgcggg cgaagcggtg cggcgccggc 1500
aggaaggaaa tggcggggga gggccttcgt gcgtcgccgc gccgcgtcc ccttctccat 1560
ctccagcctc gggcggtccg cagggggagc gctgccttcg ggggggacgg ggcagggcg 1620
ggttcggctt ctggcgtgtg accggcggt ctagaagcgt tggggtgagt actccctctc 1680
aaaagcgggc atgacttctg cgctaagatt gtcagtttcc aaaaacgagg aggatttgat 1740
attcacctgg cccgcggtga tgcctttgag ggtggccgcg tccatctggt cagaaaagac 1800
aatctttttg ttgtcaagct tgaggtgtgg caggcttgag atctggccat acacttgagt 1860
gacattgaca tccactttgc ctttctctcc acaggtgtcc actcccaggg cggcctccgg 1920
agcgatcgcc gatccgccta gcattcaacc atggctagat tagataaaaag taaagtgatt 1980
aacagcgcat tagagctgct taatgaggtc ggaatcgaag gtttaacaac ccgtaaaactc 2040
gcccagaagc taggtgtaga gcagcctaca tatgattggc atgtaaaaaa taagcgggct 2100
ttgctcgacg ccttagccat tgagatgtta gataggcacc atactcactt ttgcccttta 2160
gaaggggaaa gctggcaaga ttttttacgt aataacgcta aaagttttag atgtgcttta 2220
ctaagtcate gcgatggagc aaaagtacat ttaggtacac ggcctacaga aaaacagtat 2280
gaaactctcg aaaatcaatt agccttttta tgccaacaag gtttttact agagaatgca 2340
ttatatgcac tcagcgctgt ggggcatttt actttagggt gcgtattgga agatcaagag 2400
catcaagtgc ctaaagaaga aagggaaca cctactactg atagtatgcc gccattatta 2460
cgacaagcta tcgaattatt tgatcaccaa ggtgcagagc cagccttctt attcggcctt 2520
gaattgatca tatgcggatt agaaaaaaca cttaaattgt aaagtgggtc gtaaccggtt 2580
cgagatccag gcgcggatca ataaaagatc attatttca atagatctgt gtgttggttt 2640
tttgtgtgcc ttgggggagg gggaggccag gaatgacctt gggggagggg gaggccagaa 2700
ccagaatgac cttgggggag ggggagggcca gaatgacctt gggggagggg gaggccagaa 2760
tgaggcgcg ccccggttac cgagctcgaa ttcactggcc gtcgttttac aacgtcgtga 2820
ctgggaaaaa cctggcggtta cccaacttaa tcgccttgca gcacatcccc ctttcgccag 2880
ctggcgtaat agcgaagagg cccgcaccga tcgccttcc caacagttgc gcagcctgaa 2940
tggcgaatgg cgcctgatgc ggtattttct ccttacgcct ctgtgcggta tttcacaccg 3000
catatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca 3060
cccgcacaac cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag 3120
acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcacgaa 3180
acgcgcgaga cgaaagggcc tcgtgatacg cctattttta taggttaatg tcatgataat 3240
aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg 3300
tttttttttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat 3360
gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat 3420
tccctttttt gcggcatttt gccttctctg ttttgctcac ccagaaacgc tggtgaaagt 3480
aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag 3540
cggtaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga gcacttttaa 3600
agttctgcta tgtggcgcgg tattatcccc tattgacgcc gggcaagagc aactcggctc 3660

```

```

ccgcatacac tattctcaga atgacttggt ttagtactca ccagtcacag aaaagcatct 3720
tacggatggc atgacagtaa gagaattatg cagtgtctgcc ataaccatga gtgataacac 3780
tgccggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg cttttttgca 3840
caacatgggg gatcatgtaa ctgccttga tcgttgggaa ccggagctga atgaagccat 3900
accaaagcac gagcgtgaca ccacgatgcc ttagcaaatg gcaacaacgt tgcgcaaact 3960
attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc 4020
ggataaagtt gcaggaccac ttctgcgctc ggcccttccg gctggctggg ttattgctga 4080
taaactctgga gccgggtgagc gtgggtctcg cggtatcatt gcagcactgg ggccagatgg 4140
taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg 4200
aaatagacag atcgtctgaga taggtgcctc actgattaaag cattggtaac tgtcagacca 4260
agtttactca tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta 4320
ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt tttcgttcca 4380
ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt tttttctgcg 4440
cgtaactctgc tgettgc aaaaaaaacc accgctacca gcggtggttt gtttgccgga 4500
tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaaa 4560
tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg tagcaccgcc 4620
tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg ataagtctgt 4680
tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcggg cgggctgaac 4740
gggggggttcg tgcacacagc ccagcttggg gcgaacgacc tacaccgaac tgagatacct 4800
acagcgtgag ctatgagaaa gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc 4860
ggtaagcggc agggctcgaa caggagagcg cacgaggagg cttccagggg gaaacgcctg 4920
gtatctttat agtcctgtcg ggtttcgcca cctctgactt ggcgtcgat ttttgtgat 4980
ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt tacggttctt 5040
ggccttttgc tggccttttg ctcacatggt ctttctgcg ttatcccttg attctgtgga 5100
taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa cgaccgagcg 5160
cagcgagtca gtgagcgagg aagcggaaga gcgcccaata cgcaaaccgc ctctccccgc 5220
gcgttggccg attcattaat gcagctggca cgacagggtt cccgactgga aagcgggcag 5280
tgagcgcaac gcaattaatg tgagttagct cactcattag gcaccccagg ctttacactt 5340
tatgcttccg gctcgtatgt tgtgtggaat tgtgagcgga taacaatttc acacaggaaa 5400
cagctatgac catgattacg ccaagctagc                                     5430

```

<210> 17

<211> 7332

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: CMV-LacZ

<400> 17

```

aaacagtccg atgtacgggc cagatatagc cgttgacatt gattattgac tagttattaa 60
tagtaataca ttacgggggc attagttcat agccatata tggagttccg cgttacataa 120
cttacggtaa atggcccgcc tggctgaccg cccaacgacc cccgccatt gagtcaata 180
atgacgtatg ttcccatagt aacgccataa gggactttcc attgacgtca atgggtggac 240
tatttacggt aaactgccc cttggcagta catcaagtgt atcatatgcc aagtagccc 300
cctattgacg tcaatgacgg taaatggccc gcctggcatt atgccagta catgacctta 360
tgggactttc ctacttgga gtacatctac gtattagtca tcgctattac catggtgatg 420
cggtttttgc agtacatcaa tgggcgtgga tagcggtttg actcacgggg atttccaagt 480
ctccacccca ttgacgtcaa tgggagtttg ttttggcacc aaaatcaacg ggactttcca 540
aaatgtcgta acaactccgc ccattgacg caaatgggcg gtaggcgtgt acgggtggag 600
gtctatataa gcagagctct ctggctaact agagaaccca ctgcttactg gcttatcgaa 660
attaatacga ctactatag ggagacccaa gctgactcta gacttaatta agcgttgggg 720
tgagtactcc ctctcaaaag cgggcatgac ttctgcgcta agattgtcag tttccaaaaa 780
cgaggaggat ttgatattca cctggcccgc ggtgatgcct ttgagggtgg ccgcgtccat 840
ctggtcagaa aagacaatct ttttgttgc aagcttgagg tgtggcaggc ttgagatctg 900
gccatacact tgagtgcac tgacatccac ttgtccttct tctccacagg tgtccactcc 960
caggggcgcc gcaattcccg gggatcgaaa gagcctgcta aagcaaaaaa gaagtcacca 1020
tgtcgtttac tttgaccaac aagaacgtga ttttcgttgc cggctctggga ggcattgggtc 1080
tggacaccag caaggagctg ctcaagcgcg atcccgtcgt tttacaacgt cgtgactggg 1140
aaaaccctgg cgttacccaa cttaatcgcc ttgcagcaca tcccccttcc gccagctggc 1200
gtaatagcga agaggccgcg accgatcgcc cttcccaaca gttgcgcagc ctgaatggcg 1260
aatggcgctt tgcctggttt ccggcaccag aagcgggtgcc ggaaagctgg ctggagtgcg 1320

```

atcttcctga	ggccgatact	gtcgtcgtcc	cctcaaaactg	gcagatgcac	ggttacgatg	1380
cgcccatcta	caccaacgta	acctatccca	ttacgggtcaa	tccgccgttt	gttcccacgg	1440
agaatccgac	gggttggttac	tcgctcacat	ttaatgttga	tgaaagctgg	ctacaggaag	1500
gccagacgcg	aattattttt	gatggcggtta	actcggcgtt	tcatctgtgg	tgcaacgggc	1560
gctgggtcgg	ttacggccag	gacagtcgtt	tgccgtctga	atttgacctg	agcgcatttt	1620
tacgcgccgg	agaaaaccgc	ctcgcggtga	tggtgctgcg	ttggagtgc	ggcagttatc	1680
tggaagatca	ggatatgtgg	cggatgagcg	gcattttccg	tgacgtctcg	ttgctgcata	1740
aaccgactac	acaaatcagc	gatttccatg	ttgccactcg	ctttaatgat	gatttcagcc	1800
gcgctgtact	ggaggctgaa	gttcagatgt	gcggcgagtt	gcgtgactac	ctacgggtaa	1860
cagtttcttt	atggcagggg	gaaaacgcag	tcgccagcgg	caccgcgcct	ttcggcgggtg	1920
aaattatcga	tgagcgtggg	ggttatgccg	atcgcgtcac	actacgtctg	aacgtcgaaa	1980
acccgaaaact	gtggagcgcc	gaaatcccg	atctctatcg	tgcggtgggt	gaactgcaca	2040
ccgcgcgacg	cacgctgatt	gaagcagaag	cctgcgatgt	cggtttccgc	gaggtgcgga	2100
ttgaaaatgg	tctgctgctg	ctgaacggca	agccgttgct	gattcgaggc	gttaaccgtc	2160
acgagcatca	tcctctgcat	ggtcaggtca	tggatgagca	gacgatgggt	caggatatcc	2220
tgctgatgaa	gcagaacaac	tttaacgccg	tgcgctgttc	gcattatccg	aaccatccgc	2280
tgtggtacac	gctgtgcgac	cgctacggcc	tgtatgtggg	ggatgaagcc	aatattgaaa	2340
cccacggcat	ggtgccaatg	aatcgtctga	ccgatgatcc	gcgctggcta	ccggcgatga	2400
gcgaacgcgt	aacgcgaatg	gtgcagcgcg	atcgtaatca	cccaggtgtg	atcatctggg	2460
cgctggggaa	tgaatcaggc	cacggcgcta	atcacgacgc	gctgtatcgc	tggtacaaat	2520
ctgtcgatcc	ttcccgcccg	gtgcagtatg	aaggcgggcg	agccgacacc	acggccaccg	2580
atattatctg	cocgatctac	gcgcgcgtgg	atgaagacca	gcccttcccg	gctgtgccga	2640
aatgggtccat	caaaaaaatgg	ctttcgctac	ctggagagac	gcgcccgctg	atcctttgcg	2700
aatacgccca	cgcgatgggt	aacagtcttg	gcggtttcgc	taaatactgg	caggcggttc	2760
gtcagtatcc	ccgtttacag	ggcggtctcg	tctgggactg	ggtggatcag	tcgctgatta	2820
aatatgatga	aaacggcaac	ccgtggctcg	cttacggcgg	tgattttggc	gatacgcga	2880
acgatcgcca	gttctgtatg	aacggtctgg	tctttgccga	ccgcacgcgc	catccagcgc	2940
tgacggaagc	aaaacaccag	cagcagtttt	tccagttccg	tttatccggg	caaaccatcg	3000
aagtgaccag	cgaataacctg	ttccgtcata	gcgataacga	gctcctgcac	tggtatgggtg	3060
cgctggatgg	taagccgctg	gcaagcggtg	aagtgcctct	ggatgtcgtc	ccacaaggta	3120
aacagttgat	tgaactgcct	gaactaccgc	agccggagag	cgccgggcaa	ctctggctca	3180
cagtacgcgt	agtgcacccg	aacgcgaccg	catggtcaga	agccgggcac	atcagcgccct	3240
ggcagcagtg	gcgtctggcg	gaaaacctca	gtgtgacgct	ccccgcgcgc	tcccacgcca	3300
tccgcgatct	gaccaccagc	gaaatggatt	tttgcatcga	gctgggtaat	aagcggtggc	3360
aatttaacgc	ccagtcaggc	tttctttcac	agatgtggat	tggcgataaa	aaacaactgc	3420
tgacgccgct	gcgcgatcag	ttcacccgtg	caccgctgga	taacgacatt	ggcgtaagtg	3480
aagcgaccgc	cattgaccct	aacgcctggg	tcgaacgctg	gaaggcgcg	ggccattacc	3540
aggccgaagc	agcgttggtg	cagtgcacgg	cagatacact	tgctgatgcg	gtgctgatta	3600
cgaccgctca	cgcggtggcag	catcagggga	aaaccttatt	tatcagccgg	aaaacctacc	3660
ggattgatgg	tagtggtcaa	atggcgatta	ccgttgatgt	tgaagtggcg	agcgatacac	3720
cgcatccggc	gcggattggc	ctgaactgcc	agctggcgca	ggtagcagag	cgggtaaact	3780
ggctcggatt	agggccgcaa	gaaaactatc	ccgaccgcct	tactgccgcc	tgttttgacc	3840
gctgggatct	gccattgtca	gacatgtata	ccccgtacgt	cttcccagac	gaaaacgggtc	3900
tgcgctgcgg	gacgcgcgaa	ttgaattatg	gcccacacca	gtggcgcggc	gacttccagt	3960
tcaacatcag	ccgctacagt	caacagcaac	tgatggaaac	cagccatcgc	catctgctgc	4020
acgcggaaga	aggcacatgg	ctgaatatcg	acggtttcca	tatggggatt	ggtggcgacg	4080
actcctggag	cccgtcagta	tcggcggaat	tacagctgag	cgccggtcgc	taccattacc	4140
agttgggtctg	gtgtcaaaaa	taataataac	cgggcaggcc	atgtctgccc	gtatttcgcg	4200
taaggaaaac	cattatgtac	tatttaaaaa	acacaaaactt	ttggatgttc	ggtttattct	4260
ttttctttta	cttttttatc	atgggagcct	acttcccgtt	tttcccgatt	tggttacatg	4320
acatcaacca	tatcagcaaa	agtatacgg	gtattatttt	tgccgctatt	tctctgttct	4380
cgctattatt	ccaaccgctg	tttggtctgc	tttctgacaa	actcgccctc	gactctaggc	4440
ggccgcgtcg	acctcgagat	ccaggcgcg	atcaataaaa	gatcattatt	ttcaatagat	4500
ctgtgtgttg	gttttttgtg	tgccctgggg	gagggggagg	ccagaatgag	gcgcggccaa	4560
gggggagggg	gaggccagaa	tgacctggg	ggagggggag	gccagaatga	ccttggggga	4620
gggggagggc	agaatgaggc	gcgcccccg	gtaccgagct	cgaattcact	ggccgtcgtt	4680
ttacaacgct	gtgactggga	aaacctggc	gttacccaac	ttaatcgcc	tgacgacat	4740
ccccctttcg	ccagctggcg	taatagcgaa	gaggcccgca	ccgatcgccc	ttcccaacag	4800
ttgcgcagcc	tgaatggcga	atggcgctg	atgcggtatt	ttctccttac	gcactctgtc	4860
ggtatttcac	accgcatatg	gtgcactctc	agtacaatct	gctctgatgc	cgcatagtta	4920
agccagcccc	gacacccgcc	aacacccgct	gacgcgcct	gacgggcttg	tctgctcccg	4980
gcacccgctt	acagacaagc	tgtgaccgct	tccgggagct	gcattgtgtca	gaggttttca	5040
ccgtcatcac	cgaaacgcgc	gagacgaaag	ggcctcgtga	tacgcctatt	tttataggtt	5100

```

aatgtcatga taataatggt ttcttagacg tcagggtggca cttttcgggg aaatgtgcgc 5160
ggaaccccta tttgtttatt tttctaaata cattcaaata tgtatccgct catgagacaa 5220
taaccctgat aaatgcttca ataatttga aaaaggaaga gtatgagtat tcaacatttc 5280
cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgtttttgc tcaaccagaa 5340
acgctggtga aagtaaaaga tgctgaagat cagttgggtg cacgagtggg ttacatcgaa 5400
ctggatctca acagcggtaa gatccttgag agttttcgcc ccgaagaacg ttttccaatg 5460
atgagcactt ttaaagttct gctatgtggc gcggtattat cccgtattga cgccgggcaa 5520
gagcaactcg gtcgccgcat acactattct cagaatgact tggttgagta ctaccagtc 5580
acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc tgccataacc 5640
atgagtgata aactgcggc caacttactt ctgacaacga tcggaggacc gaaggagcta 5700
accgcttttt tgcacaacat gggggatcat gtaactcgcc ttgatcgttg ggaaccggag 5760
ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgctgtagc aatggcaaca 5820
acgttgcgca aactattaac tggcgaacta cttactctag cttcccgga acaattaata 5880
gactggatgg aggcggataa agttgcagga ccacttctgc gctcggccct tccggctggc 5940
tggtttattg ctgataaatc tggagccggt gagcgtgggt ctgcggtat cattgcagca 6000
ctggggccag atggtaaagg ctcccgatc gtatgtatct acacgacggg gagtccagga 6060
actatggatg aacgaaatag acagatcgct gagatagggt cctcactgat taagcattgg 6120
taactgtcag accaagttta ctcatatata ctttagattg atttaaaact tcatttttaa 6180
tttaaaagga tctaggtgaa gatccttttt gataatctca tgacaaaaat cccttaacgt 6240
gagttttcgt tccactgagc gtcagacccc gttagaaaaga tcaaaggatc ttcttgagat 6300
cctttttttc tgcgcgtaat ctgctgcttg caaacaacaa aaccacgct accagcgggtg 6360
gtttgtttgc cggatcaaga gctaccaact ctttttcgga aggttaactg cttcagcaga 6420
gcgcatagac caaataactgt ccttctagt tagccgtagt taggccacca cttcaagaac 6480
tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt 6540
ggcgataagt cgtgtcttac cgggttgac tcaagacgat agttaccgga taaggcgagc 6600
cggtcgggct gaacgggggg ttcgtgcaca cagcccagct tggagcgaac gacctacacc 6660
gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga agggagaaaag 6720
gcgacaggt atccggtaag cggcagggtc ggaacaggag agcgacagag ggagcttcca 6780
gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg acttgagcgt 6840
cgatttttgt gatgctcgtc agggggggcg agcctatgga aaaacgccag caacgcggcc 6900
tttttacggt tccgtgacct ttgctggcct tttgctcaca tgttctttcc tgcgttatcc 6960
cctgattctg tggataaccg tattaccgcc tttgagttag ctgataccgc tcgccgcagc 7020
cgaacgaccg agcgacagca gtcagtgagc gaggaagcgg aagagcgccc aatacgcaaa 7080
ccgcctctcc ccgcgcgttg gccgattcat taatgcagct ggcacgacag gtttcccagc 7140
tggaagcgcg gcagtgagcg caacgcaatt aatgtgagtt agctcactca ttaggcacc 7200
caggctttac actttatgct tccggctcgt atgttggtg gaattgtgag cgataaaca 7260
tttcacacag gaaacagcta tgaccatgat tacgccaagc tagcccgggc tagcttgcat 7320
gcctgcaggt tt 7332

```

<210> 18

<211> 5878

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: CAGGS-cre

<400> 18

```

ttcgacattg attattgact agttattaat agtaatcaat tacgggggtca ttagttcata 60
gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgccct ggctgaccgc 120
ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag 180
ggactttcca ttgacgtcaa tgggtggact atttacggt aactgcccac ttggcagtac 240
atcaagtgtg tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg 300
cctggcatta tgcccagtac atgaccttat gggactttcc tacttggcag tacatctacg 360
tattagtcac cgctattacc atgggtcgag gtgagcccca cgttctgctt cactctcccc 420
atctccccc cctcccccacc cccaattttg tatttattta ttttttaatt attttgtgca 480
gcgatggggg cggggggggg gggggcgcg agcaggcggg gcggggcggg gcgagggggc 540
ggcgggggcg aggcggagag gtgcggcggc agccaatcag agcggcgcg tccgaaagtt 600
tccttttatg gcgagcgggc ggcgggcggc gccctataaa aagcgaagcg cgcgcgggc 660
gggagtcgct gcgttgccct cgccccgtgc cccgctccgc gcgcctcgc gccgcccgc 720
ccggtcttga ctgaccgctg tactcccaca ggtgagcggg cgggacggcc cttctcctcc 780
gggctgtaat tagcgcttgg tttaatgacg gctcgtttct tttctgtggc tgcgtgaaa 840

```

ccttaaaggg ctccgggagg gccctttgtg cgggggggag cggctcgggg ggtgcgtgcg 900
 tgtgtgtgtg cgtggggagc gccgcgtgcg gcccgcgctg cccggcggtg gtgagcgctg 960
 cgggcgcggc gcggggcttt gtgcgtcccg cgtgtgcgcg aggggagcgc ggccggggggc 1020
 ggtgccccgc ggtgcggggg ggctgcgagg ggaacaaagg ctgcgtgcgg ggtgtgtgcg 1080
 tgggggggtg agcagggggg gtgggcgcgg cggtcgggct gtaaccccc cctgcacccc 1140
 cctccccgag ttgctgagca cggcccggct tcgggtgcgg ggctccgtgc ggggcgtggc 1200
 gcggggctcg ccgtgccggg cggggggtgg cggcaggtgg ggtgcccggg cggggcgggg 1260
 ccgcctcggg ccggggaggg ctccggggag gggcgcgcg gccccggagc gccggcggt 1320
 gtcgaggcgc ggcgagccgc agccattgcc ttttatggta atcgtgcgag agggcgagc 1380
 gacttccttt gtcccaaate tggcgagcc gaaatctggg aggcgcggcc gcacccctc 1440
 tagcggggcg gggcgaagcg gtgcggcgcc ggcaggaagg aaatggcgcg ggaggcgctt 1500
 cgtgcgtcgc cgcgccgcg tccctttctc catctccagc ctccgggctg ccgcaggggg 1560
 acggctgcct tcggggggga cggggcaggg cgggggttcg cttctggcgt gtgaccggcg 1620
 gctctagtaa gcgttggggg gactactccc tctcaaaagc gggcatgact tctgcgctaa 1680
 gattgtcagt ttccaaaaac gaggaggatt tgatattcac ctggcccgcg gtgatgcctt 1740
 tgagggtggc cgcgtccatc tggtcagaaa agacaatctt tttgttgtca agcttgaggt 1800
 gtggcaggct tgagatctgg ccatacactt gactgacatt gacatccact ttgcctttct 1860
 ctccacagggt gtccactccc agggcgccct cgaccatgcc caagaagaag aggaagggtg 1920
 ccaatttact gaccgtacac caaaatttgc ctgcattacc ggtcgatgca acgagtgatg 1980
 aggttcgcaa gacctgatg gacatgttca gggatcgcca ggcgttttct gagcatacct 2040
 ggaaaatgct tctgtccgtt tgccggctgt gggcgccatg gtgcaagttg aataaccgga 2100
 gatgttttcc cgcagaaacct gaagatgttc gcgattatct tctatatctt caggcgcgcg 2160
 gtctggcagt aaaaactatc cagcaacatt tgggccagct aaacatgctt catcgtcggt 2220
 ccgggctgcc acgaccaagt gacagcaatg ctgtttcact ggttatgcgg cggatccgaa 2280
 aagaaaacgt tgatgccggg gaacgtgcaa aacaggctct agcgttcgaa cgcactgatt 2340
 tcgaccaggt tcgttccact atggaaaata gcgatcgctg ccaggatata cgtaactcgg 2400
 catttctggg gattgcttat aacaccctgt tacgtatagc cgaaattgcc aggatcaggg 2460
 ttaaagatat ctcacgtact gacggtggga gaattgtaac ccatattggc agaacgaaaa 2520
 cgctggttag caccgcaggt gtagagaagg cacttagcct gggggtaact aaactggctg 2580
 agcgatggat ttccgtctct ggtgtagctg atgatccgaa taactacctg ttttgccggg 2640
 tcagaaaaaa tgggtgttgc gcgccatctg ccaccagcca gctatcaact cgcgccctgg 2700
 aagggatatt tgaagcaact catcgattga tttacggcgc taaggatgac tctggtcaga 2760
 gatacctggc ctggtctgga cacagtccc gtgtcggagc cgcgcgagat atggcccgcg 2820
 ctggagtttc aataccggag atcatgcaag ctggtggctg gaccaatgta aatattgtca 2880
 tgaactatat ccgtaacctg gatagtgaag caggggcaat ggtgcgcctg ctggaagatg 2940
 gcgattagcc attaacgcgt aaatgattgc agatccacta gttctagggc cgcgtcgacc 3000
 tcgagatcca ggcgcggatc aataaaaagat cattattttc aatagatctg tgtgttgggt 3060
 ttttgtgtgc cttggggggg ggggaggcca gaattgagcg cggccaaggg ggagggggag 3120
 gccagaatga ctttggggga gggggaggcc agaattgacct tggggggagg ggaggccaga 3180
 atgaggcgcg ccccgggta ccgagctcga attcactggc cgtcgtttta caacgtcgtg 3240
 actgggaaaa ccctggcggt acccaactta atcgccttgc agcacatccc cctttcgcca 3300
 gctggcgtaa tagcgaagag gccgcgaccg atcgccttcc ccaacagttg cgcagcctga 3360
 atggcgaatg gcgcctgat cggtattttc tccttacgca tctgtgcggg atttcacacc 3420
 gcatatggtg cactctcagt acaatctgct ctgatgcgc atagttaagc cagccccgac 3480
 acccgccaac acccgctgac gcgcctgac gggcttgtct gctcccggca tccgcttaca 3540
 gacaagctgt gaccgtctcc gggagctgca tgtgtcagag gttttcaccg tcatcaccga 3600
 aacgcgcgag acgaaagggc ctogtgatac gctattttt ataggttaat gtcatagata 3660
 taatggtttc ttagacgtca ggtggcactt ttccgggaaa tgtgcgcgga acccctattt 3720
 gtttattttt ctaaaatacat tcaaatatgt atccgctcat gagacaataa cctgataaaa 3780
 tgcttcaata atattgaaaa aggaagagta tgagtattca acatttccgt gtgcacctta 3840
 ttcccttttt tgcggcattt tgcccttctg tttttgctca ccagaaaag ctggtgaaag 3900
 taaaagatgc tgaagatcag ttgggtgcac gactgggtta catcgaaact gatctcaaca 3960
 gcggttaagat ccttgagagt tttcgccccg aagaacggtt tccaatgat agcactttta 4020
 aagttctgct atgtggcgcg gtattatccc gtattgacgc cgggcaagag caactcggtc 4080
 gccgcataca ctattctcag aatgacttgg ttgagtactc accagtcaca gaaaagcatt 4140
 ttacggatgg catgacagta agagaattat gcagtgtgc cataaccatg agtgataaca 4200
 ctgcggccaa cttacttctg acaacgatcg gaggaccgaa ggagctaacc gcttttttgc 4260
 acaacatggg ggtatcatgta actcgccttg atcgttggga accggagctg aatgaagcca 4320
 taccaaaacga cgagcgtgac accacgatgc ctgtagcaat ggcaacaacg ttgctgaaac 4380
 tattaactgg cgaactactt actctagctt cccggcaaca attaatagac tggatggagg 4440
 cggataaagt tgcaggacca cttctgcgct cggcccttcc ggctggctgg tttattgctg 4500
 ataaatctgg agccggtgag cgtgggtctc gcggtatcat tgcagcactg gggccagatg 4560
 gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact atggatgaac 4620

```

gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa ctgtcagacc 4680
aagtttactc atatatactt tagattgatt taaaacttca tttttaattt aaaaggatct 4740
aggatgaagat cctttttgat aatctcatga ccaaaatccc ttaacgtgag ttttcgttcc 4800
actgagcgtc agaccccgta gaaaagatca aaggatcttc ttgagatcct ttttttctgc 4860
gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcgggtggtt tgtttgccgg 4920
atcaagagct accaactctt tttccgaagg taactggctt cagcagagcg cagataccaa 4980
atactgtcct tctagtgtag ccgtagttag gccaccactt caagaactct gtagcaccgc 5040
ctacatacct cgctctgcta atcctgttac cagtggctgc tgccagtggc gataagtcgt 5100
gtcttaccgg gttggactca agacgatagt taccggataa ggcgagcgg tcgggctgaa 5160
cgggggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa ctgagatacc 5220
tacagcgtga gctatgagaa agcggccagc ttcccgaagg gagaaaggcg gacaggtatc 5280
cggtaagcgg cagggtcgga acaggagagc gcacgaggga gcttccaggg ggaaacgcct 5340
ggatctttta tagtcctgtc gggtttcgcc acctctgact tgagcgtcga tttttgtgat 5400
gctcgtcagg ggggcggagc ctatggaaaa acgccagcaa cgcggccttt ttacggttcc 5460
tggccttttg ctggcctttt gctcacatgt tctttcctgc gttatcccct gattctgtgg 5520
ataaccgtat taccgccttt gagtgagctg ataccgctcg ccgcagccga acgaccgagc 5580
gcagcgagtc agtgagcgag gaagcggaag agcgcccaat acgcaaaccg cctctccccg 5640
cgcggtggcc gattcattaa tgcagctggc acgacaggtt tcccgactgg aaagcgggca 5700
gtgagcgaac cgcaattaat gtgagttagc tcaatcatta ggcaccccag gctttacact 5760
ttatgcttcc ggctcgtatg ttgtgtggaa ttgtgagcgg ataacaattt cacacaggaa 5820
acagctatga ccatgattac gccaaagctag cccgggctag cttgcatgcc tgcaggtt 5878

```

```

<210> 19
<211> 47
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the CDH-1 gene

```

```

<400> 19
tgagaagtct cccagtcagt tcaagagact gactgggaga cttctca 47

```

```

<210> 20
<211> 47
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the p53 gene

```

```

<400> 20
gactccagtg gtaatctact tcaagagagt agattaccac tggagtc 47

```

```

<210> 21
<211> 47
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: DNA encoding
      an shRNA directed against the CDC20 gene

```

```

<400> 21
cggcaggact ccgggccgat tcaagagatc ggcccggagt cctgccg 47

```

```

<210> 22

```

<211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 22
 cctcatgcag ttctctttgt tcaagagaca aagagaactg catgagg

47

<210> 23
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the RAS-GAP gene

<400> 23
 aagatgaagc cactccctat ttcaagagaa aatagggagt ggcttcatt

50

<210> 24
 <211> 41
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the tubulin gene

<400> 24
 gacagagcca agtggactca cagagtccac ttggctctgt c

41

<210> 25
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the lamin gene

<400> 25
 ctggacttcc agaagaacat tcgtgttctt ctggaagtcc ag

42

<210> 26
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 12

<400> 26
 gagattggtc cagaacagtt tcaagagaac tgttctggac caatctc

47

<210> 27
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 12

<400> 27
 gcccttccga tcatggtagt tcaagagact accatgatcg gaagggc

47

<210> 28
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 12

<400> 28
 tctttagaat tcttaagtat tcaagagata cttaagaatt ctaaaga

47

<210> 29
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene of the
 ubiquitin carboxyl-terminal hydrolase

<400> 29
 cattagctat atcaacatgt tcaagagaca tggtgatata gctaata

47

<210> 30
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 11

<400> 30
 accacaaacg gcggaacgat tcaagagatc gttccgccgt ttgtggt

47

<210> 31
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 31

gagggtcttg gaggtcttct tcaagagaga agacctcaa gaccctc

47

<210> 32

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 32

gtccatgccc agcogtacat tcaagagatg tacggctggg catggac

47

<210> 33

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 11

<400> 33

gctggacacc ctcgtggagt tcaagagact ccacgagggt gtccagc

47

<210> 34

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 34

gaatatcaga gaattgagtt tcaagagAAC tcaattctct gatattc

47

<210> 35

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 10

<400> 35

tggacttcat gaggaatgt tcaagagaca tttcctcatg aagtcca

47

<210> 36
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 10

<400> 36
 tattgaatat cctgtggact tcaagagagt ccacaggata ttcaata

47

<210> 37
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 10

<400> 37
 ttgtactgag agaaactgct tcaagagagc agtttctctc agtacia

47

<210> 38
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the HAUSP gene

<400> 38
 gatcaatgat aggtttgaat tcaagagatt caaacctatc attgatc

47

<210> 39
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the HAUSP gene

<400> 39
 ggagtttgag aagtttaaat tcaagagatt taaacttctc aaactcc

47

<210> 40
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding

an shRNA directed against the HAUSP gene

<400> 40
gaactcctcg cttgctgagt tcaagagact cagcaagcga ggagttc 47

<210> 41
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the HAUSP gene

<400> 41
ccgaatttaa cagagagaat tcaagagatt ctctctgtta aattcgg 47

<210> 42
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 42
gacagcagaa gaatgcagat tcaagagatc tgcattcttc tgctgtc 47

<210> 43
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 43
ataaagctca acgagaacct tcaagagagg ttctcgttga gctttat 47

<210> 44
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 44
ggtgaagtgg cagaagaatt tcaagagaat tcttctgcc a cttcacc 47

<210> 45
<211> 47

<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 8

<400> 45

gtattgcagt aatcatcact tcaagagagt gatgattact gcaatac

47

<210> 46

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ10785 gene

<400> 46

gatatggggt tccatgtcat tcaagagatg acatggaacc ccatatc

47

<210> 47

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ10785 gene

<400> 47

ggagacatgg ttcttagtgt tcaagagaca ctaagaacca tgtctcc

47

<210> 48

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ10785 gene

<400> 48

agcaccaagt tcgtctcagt tcaagagact gagacgaact tgggtgct

47

<210> 49

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ10785 gene

<400> 49

gatgcaacac tgaaagaact tcaagagagt tctttcagtg ttgcatc

47

<210> 50
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 50
 gtcaatggca gtgatgatat tcaagagata tcatcactgc cattgac

47

<210> 51
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 51
 cctgctagct gcctgtggct tcaagagagc cacaggcagc tagcagg

47

<210> 52
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 52
 ccacctttgc cagaaggagt tcaagagact ccttctggca aaggtgg

47

<210> 53
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA0710 gene

<400> 53
 ccctattgag gcaagtgtct tcaagagaga cacttgcctc aataggg

47

<210> 54
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the genes
 FLJ12552/FLJ14256

<400> 54
gaaggaaaac ttgctgacgt tcaagagacg tcagcaagtt ttccttc

47

<210> 55
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 55
ctcacctggg tccatgagat tcaagagatc tcattggaccc aggtgag

47

<210> 56
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 56
gctgtcttac cgtgtggtct tcaagagaga ccacacggta agacagc

47

<210> 57
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12552/FLJ14256
genes

<400> 57
cctggaccgc atgtatgact tcaagagagt catacatgcg gtccagg

47

<210> 58
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 58
gtcaatggca gtgatgatat tcaagagata tcattcactgc cattgac

47

<210> 59
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 59

cctgctagct gcctgtggct tcaagagagc cacaggcagc tagcagg

47

<210> 60

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 60

ccacctttgc cagaaggagt tcaagagact ccttctggca aaggtgg

47

<210> 61

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1203 gene

<400> 61

ccctattgag gcaagtgtct tcaagagaga cacttgcctc aataggg

47

<210> 62

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 62

ggaaatccga attgcttggt tcaagagacc aagcaattcg gatttcc

47

<210> 63

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ23277 gene

<400> 63

cacatttctt caagtgtggt tcaagagacc acacttgaag aaatgtg

47

<210> 64

<211> 47

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ23277 gene

<400> 64
 cagcaggatg ctcaagaatt tcaagagaat tcttgagcat cctgctg

47

<210> 65
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ23277 gene

<400> 65
 gctgaatacc tacattggct tcaagagagc caatgtaggt attcagc

47

<210> 66
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14914 (similar to
 UBP4) gene

<400> 66
 gggcttgtgc ctggccttgt tcaagagaca aggccaggca caagccc

47

<210> 67
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14914 (similar to
 UBP4) gene

<400> 67
 gccttgtcct gccagaagt tcaagagact tcttggcagg acaaggc

47

<210> 68
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14914 (similar to
 UBP4) gene

<400> 68

gattgaagcc aagggaacgt tcaagagacg ttcccttggc ttcaatc

47

<210> 69
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the FLJ14914 (similar to
 UBP4) gene

<400> 69
 tggcgctgc tccccatctt tcaagagaag atggggagca ggcgcca

47

<210> 70
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5

<400> 70
 gaaccagcag gctctgtggt tcaagagacc acagagcctg ctggttc

47

<210> 71
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5

<400> 71
 ggaagcataa ttatctgcct tcaagagagg cagataatta tgcttcc

47

<210> 72
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase isozyme L5

<400> 72
 agaagaagat gcttttcact tcaagagagt gaaaagcatc ttcttct

47

<210> 73
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L5

<400> 73

cttgacagagg aggaacccat tcaagagatg ggttcctcct ctgcaag

47

<210> 74

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 74

gcaaacaatc agcaatgcct tcaagagagg cattgctgat tgtttgc

47

<210> 75

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 75

ttggactgat tcatgctatt tcaagagaat agcatgaatc agtccaa

47

<210> 76

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 76

ctggcaattc gttgatgtat tcaagagata catcaacgaa ttgccag

47

<210> 77

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L3

<400> 77

ttagatgggc ggaagccatt tcaagagaat ggcttccgcc catctaa

47

<210> 78

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 78

gaggagtctc tgggctcggt tcaagagacc gagcccagag actcctc

47

<210> 79

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 79

gagctgaagg gacaagaagt tcaagagact tcttgtcct tcagctc

47

<210> 80

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 80

tgtcgggtag atgacaaggt tcaagagacc ttgtcatcta cccgaca

47

<210> 81

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase isozyme L1

<400> 81

cacagctgtt cttctgttct tcaagagaga acagaagaac agctgtg

47

<210> 82

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1891/FLJ25263
genes

<400> 82

gtggaagcct ttacagatct tcaagagaga tctgtaaagg cttccac

47

<210> 83

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1891/FLJ25236
genes

<400> 83

caacagctgc cttcatctgt tcaagagaca gatgaaggca gctgttg

47

<210> 84

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1891/FLJ25263
genes

<400> 84

cctatggcag tcctcctaatt tcaagagatt aggaggactg cctatgg

47

<210> 85

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1891/FLJ25263
genes

<400> 85

tgtatcactg ccactgggtt tcaagagaaa ccagtggcag tgatata

47

<210> 86

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14528 (similar to
UBP8) gene

<400> 86

catgttgggc agctgcagct tcaagagagc tgcagctgcc caacatg

47

<210> 87

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14528 (similar to
UBP8) gene

<400> 87

cacaactgga gacctgaagt tcaagagact tcaggtctcc agttgtg

47

<210> 88

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14528 (similar to
UBP8) gene

<400> 88

gtatgcctcc aagaaagagt tcaagagact ctttcttgga ggcatac

47

<210> 89

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ14528 (similar to
UBP8) gene

<400> 89

cttcacagta catttctctt tcaagagaag agaaatgtac tgtgaag

47

<210> 90

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65 kDa protein

<400> 90

gtactttcaa ggccgggggtt tcaagagaac cccggccttg aaagtac

47

<210> 91

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65 kDa protein

<400> 91

cttgacaag caagccaaat tcaagagatt tggcttgctt gtccaag

47

<210> 92

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65 kDa protein

<400> 92

gactattgtg actgatgttt tcaagagaaa catcagtcac aatagtc

47

<210> 93

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the U4/U6
TRI snRNP 65kDa protein

<400> 93

ggagaacttt ctgaagcgct tcaagagagc gcttcagaaa gttctcc

47

<210> 94

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA for the XM_089437 gene

<400> 94

gacgagagaa accttcacct tcaagagagg tgaaggtttc tctcgtc

47

<210> 95

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the XM_089437 gene

<400> 95

acattattct acattctttt tcaagagaaa agaattgtaga ataattgt

47

<210> 96
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the XM_089437 gene

<400> 96
 agattcgcaa atggatgtat tcaagagata catccatttg cgaatct

47

<210> 97
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the XM_089437 gene

<400> 97
 cattcccacc atgagtctgt tcaagagaca gactcatggt gggaatg

47

<210> 98
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1453 gene

<400> 98
 gatcgcccca cacttccgct tcaagagagc ggaagtgtcg ggcgac

47

<210> 99
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1453 gene

<400> 99
 ccagcaggcc tacgtgctgt tcaagagaca gcacgtaggc ctgctgg

47

<210> 100
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1453 gene

<400> 100

gccagctcct ccacagcact tcaagagagt gctgtggagg agctggc

47

<210> 101

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1453 gene

<400> 101

cgccgcccaag tggagcagat tcaagagatc tgctccactt ggcggcg

47

<210> 102

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 102

gaagatgccc atgaattcct tcaagagagg aattcatggg catcttc

47

<210> 103

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 103

caaacaggct ggcgccaggct tcaagagagc ctggcgcagc ctgtttg

47

<210> 104

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 104

acggcctagc gcctgatggt tcaagagacc atcaggcgct aggccgt

47

<210> 105

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the FLJ12697 gene

<400> 105
ctgtaacctc tctgatcggg tcaagagacc gatcagagag gttacag

47

<210> 106
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 106
tctgtcagtc catcctggct tcaagagagc caggatggac tgacaga

47

<210> 107
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 107
tgaagcgaga gtcttgtgat tcaagagatc acaagactct cgcttca

47

<210> 108
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 108
gatggagtgc taatggaaat tcaagagatt tccattagca ctccatc

47

<210> 109
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease (USP18)

<400> 109
ccttcagaga ttgacacgct tcaagagagc gtgtcaatct ctgaagg

47

<210> 110
<211> 47

<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 20

<400> 110

cctgaccacg ttccgactgt tcaagagaca gtcggaacgt ggtcagg

47

<210> 111

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 20

<400> 111

gagttccttc gctgcctgat tcaagagatc aggcagcgaa ggaactc

47

<210> 112

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 20

<400> 112

gactgccttg ctgccttctt tcaagagaag aaggcagcaa ggcagtc

47

<210> 113

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 20

<400> 113

cgccgagggc tacgtactct tcaagagaga gtacgtagcc ctcggcg

47

<210> 114

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 24

<400> 114
 ggcgagaaga aaggactgtt tcaagagaac agtcctttct tctcgcc 47

<210> 115
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl terminal hydrolase 24

<400> 115
 ggacgagaat tgataaagat tcaagagatc tttatcaatt ctcgtcc 47

<210> 116
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 24

<400> 116
 gcacgagaat ttgggaatct tcaagagaga ttcccaaatt ctcgtgc 47

<210> 117
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 24

<400> 117
 ctacttcattg aaatattggt tcaagagacc aatatttcatt gaagtag 47

<210> 118
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1594 gene

<400> 118
 gataacagct tcttgtctat tcaagagata gacaagaagc tggtatc 47

<210> 119
 <211> 47
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1594 gene

<400> 119

gagaatagga catcagggct tcaagagagc cctgatgtcc tattctc

47

<210> 120

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1594 gene

<400> 120

cttgaagac tgaacctgtt tcaagagAAC aggttcagtc ttccaag

47

<210> 121

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1594 gene

<400> 121

caactccttt gtggatgcat tcaagagatg catccacaaa ggagttg

47

<210> 122

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1350 gene

<400> 122

gatgttgtct ccaaatgcat tcaagagatg catttggaga caacatc

47

<210> 123

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1350 gene

<400> 123

cgtggggact gtacctccct tcaagagagg gaggtacagt cccacg

47

<210> 124

<211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1350 gene

<400> 124
 gtacagcttc agaaccaagt tcaagagact tggttctgaa gctgtac

47

<210> 125
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 25

<400> 125
 gatgatcttc agagagcaat tcaagagatt gctctctgaa gatcatc

47

<210> 126
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 25

<400> 126
 ggaacatcgg aatttgcctt tcaagagaag gcaaattccg atgttcc

47

<210> 127
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 25

<400> 127
 gagctagtga gggactcttt tcaagagaaa gagtcctca ctagctc

47

<210> 128
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 25

<400> 128
gcagggttct ttaaggcaat tcaagagatt gccttaaaga accctgc

47

<210> 129
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 16

<400> 129
tcgatgattc ctctgaaact tcaagagagt ttcagaggaa tcacga

47

<210> 130
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 16

<400> 130
gataatggaa atattgaact tcaagagagt tcaatatttc cattatc

47

<210> 131
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 16

<400> 131
gttcttcatt taaatgatat tcaagagata tcatttaaata gaagaac

47

<210> 132
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 16

<400> 132
gttaacaaac acataaagtt tcaagagaac tttatgtgtt tgtaac

47

<210> 133
<211> 47

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 133
 gttagagaag attcttcggt tcaagagaac gaagaatctt ctctaac

47

<210> 134
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 134
 gttgattgga caattaaact tcaagagagt ttaattgtcc aatcaac

47

<210> 135
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 135
 gtttgatacc gttaaagcgct tcaagagagc gctttacggt atcaacc

47

<210> 136
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9X gene

<400> 136
 gcaatgaaac gtccaatggt tcaagagacc attggacgtt tcattgc

47

<210> 137
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 137
 agctagagaa aattcttcgt tcaagagacg aagaattttc tctagct

47

<210> 138
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 138
 gatcctatat gatggatgat tcaagagatc atccatcata taggatc

47

<210> 139
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 139
 gttcttcttg tcaagtgaat tcaagagatt tcaactgacaa gaagaac

47

<210> 140
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the USP9Y gene

<400> 140
 cttgagcttg agtgaccact tcaagagagt ggtcactcaa gctcaag

47

<210> 141
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 5

<400> 141
 gaccggccag cgagtctact tcaagagagt agactcgctg gccggtc

47

<210> 142
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 5

<400> 142
ggacctgggc tacatctact tcaagagagt agatgtagcc caggtcc

47

<210> 143
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 5

<400> 143
ctctgtggtc caggtgctct tcaagagaga gcacctggac cacagag

47

<210> 144
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 5

<400> 144
gaccacacga tttgcctcat tcaagagatg aggcaaatcg tgtggtc

47

<210> 145
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 26

<400> 145
tggcttggtt attgaaggat tcaagagatc cttcaataaa caagcca

47

<210> 146
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 26

<400> 146
gtgaatttgg ggaagataat tcaagagatt atcttcccca aattcac

47

<210> 147
<211> 47
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl- terminal hydrolase 26

<400> 147

cgctatagct tgaatgagtt tcaagagaac tcattcaagc tatagcg

47

<210> 148

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl- terminal hydrolase 26

<400> 148

gatatcctgg ctccacacat tcaagagatg tgtggagcca ggatatac

47

<210> 149

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1097 gene

<400> 149

gagccagtcg gatgtagatt tcaagagaat ctacatccga ctggctc

47

<210> 150

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1097 gene

<400> 150

gtaaattctg aaggcgaatt tcaagagaat tcgccttcag aatttac

47

<210> 151

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1097 gene

<400> 151

gccctcctaa atcaggcaat tcaagagatt gcctgattta ggagggc

47

<210> 152
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1097 gene

<400> 152
 gttgagaaat ggagtgaagt tcaagagact tcaactccatt tctcaac

47

<210> 153
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 153
 gcttggaaaa tgcaaggcgt tcaagagacg ccttgcatTT tccaagc

47

<210> 154
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 154
 ctgcatcata gaccagatct tcaagagaga tctggtctat gatgcag

47

<210> 155
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin specific protease (USP22) gene

<400> 155
 gatcaccacg tatgtgtcct tcaagagagg acacatacgt ggtgatc

47

<210> 156
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding

an shRNA directed against the gene for the
ubiquitin specific protease 22 (USP22) gene

<400> 156
tgacaacaag tattccctgt tcaagagaca gggaatactt gttgtca

47

<210> 157
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 157
gaaatataag acagattcct tcaagagagg aatctgtctt atatttc

47

<210> 158
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 158
cccatcaagt ttagaggatt tcaagagaat cctctaaact tgatggg

47

<210> 159
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 159
ggtgtcccat gggaatatat tcaagagata tattcccatg ggacacc

47

<210> 160
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific processing protease 29

<400> 160
gaatgccgac ctacaaagat tcaagagatc tttgtaggtc ggcattc

47

<210> 161
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 161
 cagttatatt ctgtgatggt tcaagagaac atcacagaat ataactg

47

<210> 162
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 162
 gaggtgttgg ggacaaaggt tcaagagacc ttgtgtcccca acacctc

47

<210> 163
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 163
 gtgggctcat tggctgaagt tcaagagact tcagccaatg agccac

47

<210> 164
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the CYLD gene

<400> 164
 gagctactga ggacagaaat tcaagagatt tctgtcctca gtagctc

47

<210> 165
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 2

<400> 165

tcagcaggat gctcaggagt tcaagagact cctgagcatc ctgctga

47

<210> 166

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 2

<400> 166

gaagttctcc atccagaggt tcaagagacc tctggatgga gaacttc

47

<210> 167

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 2

<400> 167

gccggtcccc accagcagct tcaagagagc tgctggtggg gaccggc

47

<210> 168

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 2

<400> 168

cactcgggag ttgagagatt tcaagagaat ctctcaactc ccgagtg

47

<210> 169

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease 3 (USP3)

<400> 169

gcccttggtg ctgtttgact tcaagagagt caaacagacc caagggc

47

<210> 170

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease 3 (USP3)

<400> 170

ctcaacacta aacagcaagt tcaagagact tgctgttttag tgttgag

47

<210> 171

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease 3 (USP3)

<400> 171

gatttcattg gacagcatat tcaagagata tgctgtccaa tgaaatc

47

<210> 172

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin specific protease 3 (USP3)

<400> 172

catggggcac caactaattt tcaagagaaa ttagttggtg ccccatg

47

<210> 173

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 23

<400> 173

ggtgtctctg cggtattggt tcaagagaac aatcccgcag agacacc

47

<210> 174

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 23

<400> 174

agttcagtag gtgtagactt tcaagagaag tctacaccta ctgaact

47

<210> 175

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 23

<400> 175

gagttcctga agctcctcat tcaagagatg aggagcttca ggaactc

47

<210> 176

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 23

<400> 176

ggatttgctg ggggcaaggt tcaagagacc ttgccccag caaatcc

47

<210> 177

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 177

ctcagaaagc caacattcat tcaagagatg aatgttggt ttctgag

47

<210> 178

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 178

cgcattgtaa taagaagggt tcaagagaac cttcttatta caatgcg

47

<210> 179

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 179
gggaggaaaa tgcagaaatt tcaagagaat ttctgcattt tcctccc

47

<210> 180

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the UBP-32.7 gene

<400> 180
ttacaaattt aggaaatact tcaagagagt atttcctaaa tttgtaa

47

<210> 181

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 181
gttatgaatt gatatgcagt tcaagagact gcatatcaat tcataac

47

<210> 182

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 182
gtgataacac aactaatggt tcaagagacc attagttgtg ttatcac

47

<210> 183

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the Homo
sapiens ubiquitin specific protease 13
(isopeptidase T-3)

<400> 183
gtagaggaga gttctgaaat tcaagagatt tcagaactct cctctac

47

<210> 184
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the Homo
 sapiens ubiquitin specific protease 13
 (isopeptidase T-3)

<400> 184
 gcctctaatac ctgataaggt tcaagagacc ttatcaggat tagaggc

47

<210> 185
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 28

<400> 185
 gatgatcttc aggctgccat tcaagagatg gcagcctgaa gatcatc

47

<210> 186
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 28

<400> 186
 gtatggacaa gagcgttggt tcaagagacc aacgctcttg tccatac

47

<210> 187
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 28

<400> 187
 cgaacccttc tggaacagtt tcaagagaac tggtccagaa gggttcg

47

<210> 188
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 28

<400> 188

gtggcatgaa gattatagtt tcaagagaac tataatcttc atgccac

47

<210> 189

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the ubiquitin
carboxyl-terminal hydrolase 14

<400> 189

ggtgaacaag gacagtatct tcaagagaga tactgtcctt gttcacc

47

<210> 190

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 14

<400> 190

gcaatagagg atgattctgt tcaagagaca gaatcatcct ctattgc

47

<210> 191

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 14

<400> 191

tctgtgaatg ccaaagttct tcaagagaga actttggcat tcacaga

47

<210> 192

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 14

<400> 192

cacaccaggg aaggtctagt tcaagagact agaccttccc tgggtgtg

47

<210> 193

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 193

gcaggaagat gcccatgaat tcaagagatt catgggcatc ttcctgc

47

<210> 194

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 194

gaatgtgcaa tatcctgagt tcaagagact caggatattg cacattc

47

<210> 195

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 195

tggatgatgc caaggtcact tcaagagagt gaccttggca tcatcca

47

<210> 196

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the DUB1 gene

<400> 196

gctccgtgct aaacctctct tcaagagaga gaggtttagc acggagc

47

<210> 197

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the mouse

USP27 homolog

<400> 197
 gcctccacct caacagaggt tcaagagacc tctgttgagg tggagggc 47

<210> 198
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 198
 ctgcatcata gaccaaattct tcaagagaga tttggtctat gatgcag 47

<210> 199
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 199
 gatcactaca tacatttcct tcaagagagg aaatgtatgt agtgatc 47

<210> 200
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the mouse
 USP27 homolog

<400> 200
 gtaaagagag cagaatgaat tcaagagatt cattctgctc tctttac 47

<210> 201
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 4

<400> 201
 cgcggggcgc agtggtatct tcaagagaga taccactgcg ccccgcg 47

<210> 202

<211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 4

<400> 202
 cagaagcgag tggggaagat tcaagagatc ttccccactg ctttctg

47

<210> 203
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 4

<400> 203
 gcctgggaga atcacaggtt tcaagagAAC ctgtgattct cccaggc

47

<210> 204
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the
 ubiquitin carboxyl-terminal hydrolase 4

<400> 204
 accagacaag gaaataccct tcaagagagg gtatttcctt gtctggt

47

<210> 205
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the TRE-2 gene

<400> 205
 cacatccacc acatcgacct tcaagagagg tcgatgtggt ggatgtg

47

<210> 206
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the TRE-2 gene

<400> 206
gtcacaaccc aagaccatgt tcaagagaca tggctctggg ttgtgac 47

<210> 207
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 207
ctcaacagga caaatcccat tcaagagatg ggatttgtcc tggtgag 47

<210> 208
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the TRE-2 gene

<400> 208
tagatcaatt attgtggatt tcaagagaat ccacaataat tgatcta 47

<210> 209
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 209
ggaacacctt attgatgaat tcaagagatt catcaataag gtgttcc 47

<210> 210
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 210
ctttaacaga aattgtctct tcaagagaga gacaatttct gttaaag 47

<210> 211
<211> 47
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed agaainst the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 211

cctatgcagt acaaagtggg tcaagagacc actttgtact gcatagg

47

<210> 212

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the gene for the
ubiquitin carboxyl-terminal hydrolase 15 (UNPH-2)

<400> 212

gatcttttct tgctttggat tcaagagatc caaagcaaga aaagatc

47

<210> 213

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1372 gene

<400> 213

cagcatcctt caggccttat tcaagagata aggcctgaag gatgctg

47

<210> 214

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1372 gene

<400> 214

gatagtgcct cggatctgct tcaagagagc agatccgagt cactatc

47

<210> 215

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
an shRNA directed against the KIAA1372 gene

<400> 215

gacatcacag cccgggagtt tcaagagaac tcccgggctg tgatgtc

47

<210> 216

<211> 47
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the KIAA1372 gene

<400> 216

ggacacagcc tatgtgctgt tcaagagaca gcacataggc tgtgtcc

47

<210> 217

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 217

gtggaggaga tctacgacct tcaagagagg tcgtagatct cctccac

47

<210> 218

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 218

ctcttgtgca actcatgcct tcaagagagg catgagttgc acaagag

47

<210> 219

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 219

acagggcccc tgcagcctct tcaagagaga ggctgcaggg gccctgt

47

<210> 220

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA encoding
 an shRNA directed against the gene for the BRCA1
 associated protein-1

<400> 220

gaagacctgg cggcaggtgt tcaagagaca cctgccgcca ggtcttc

47